MEDICAL LIBRARY

SEP 27 1948

THE physical therapy REVIEW

Volume 28 - Number 5 September-October 1948

Guthrie-Smith Apparatus—BIER

Physical Therapist and Co-Workers—DANIELS

Orthopedic Surgeon and Co-Workers—LOWMAN

Women's Medical Specialist Corps—VOGEL

PUBLISHED BIMONTHLY BY
THE AMERICAN PHYSICAL THERAPY ASSOCIATION

effective diathermy technic

THE BURDICK X 85
Short Wave Diathermy

Many authorities agree that diathermy is more effective when large areas, such as an entire limb, are heated rather than a definite localized area.

The Burdick X 85 Diathermy has the power and versatility required for effective heating of either large or small areas.

The induction cable may be wrapped around the part to be treated in the case of a whole extremity. In treating other large and small areas, the Contour Applicator with its great flexibility affords an ideal method of application.

For convenience, the Burdick X 85 Diathermy is unexcelled, but of even more importance is its ability to heat effectively the large areas as recommended by authorities.

Write The Burdick Corporation, Milton, Wisconsin, for further information.

BULLETIN

Deliveries will start in January of the new Burdick Direct Recording Electrocardiograph. Watch for further details.

Burdick

THE BURDICK CORPORATION

The Physical Therapy Review

(Formerly The Physiotherapy Review)

Official Publication of The American Physical Therapy Association

Volume 28 | September-October 1948 | Number 5

Guthrie-Smith Apparatus:

Its Construction and Use in Rehabilitation

Kathryn S. Bier

The Guthrie-Smith apparatus is one designed to provide means for suspension therapy. Its development began during the last war when Mrs. Olive Guthrie-Smith, a physical therapist working with war casualties in London, became increasingly aware that old physical therapy procedures were inadequate where instituting self-activated movement was concerned. She found that patients who were given instructions in how to help themselves, and who were given the physical means of doing so were much more cooperative than those who were routinely exercised passively or in an active assistive manner by the attending physical therapist. Mrs. Guthrie-Smith was keenly aware of the necessity for working with, rather than on the patient. Today we are entirely in accord with this idea. Not one of us working in any of the rehabilitation services as we know them now can escape these unwritten and written laws—show the patient how to help himself and give him the means of doing so. Make him an active partner in his own recovery. Such was the thinking which lay behind the development of this therapeutic method.

At its inception the apparatus consisted of a single rope and pulley (no counterbalancing weights) suspended from a hook or overhead beam always to be found in military huts. Cases treated were primarily stiff joints following septic injuries. In the period following the last war so many cases of total paralysis needed after-care that the need for more adequate apparatus became apparent. Realizing the mechanical hindrances to movement to be gravity, friction, the dead weight of a paralyzed limb, mental tension and fear, Mrs. Guthrie-Smith sought methods of alleviating these factors. She found solutions in:

A. Balancing out the weight of the limb by suspension.
B. Raising the limb to free it from friction.
C. Accurate fixation over the axis of movement.
D. Comfortable and safe support by canvas slings.
E. Teaching initial relaxation in this position.
F. Careful technic in reeducation of movement.

During World War II the suspension apparatus was used in the follow-up treatment of all types of fractures, for reeducating paraplegics and cases of poliomyelitis to both gross and specific movement, for general exercise during the bed-fast stage of medical and surgical cases, for the mobilization of stiff joints and backs, and for obtaining relaxed movement in spastic neurological cases.

Changes in the apparatus have been necessitated by, and have kept up with, the diversification of its uses. Whereas the simple beginnings of the apparatus consisted in counterbalancing the weight of a limb or part of the body by isolated rope and sling systems, need for more complete suspension led to the development of a rigid but adjustable framework from which the whole body could be suspended.

Box 454, Carmel-By-The-Sea, Calif.

Acknowledgment: All drawings of the apparatus were made by Ruth Rowe; the photograph by O. Leonard Huddleston, M.D.

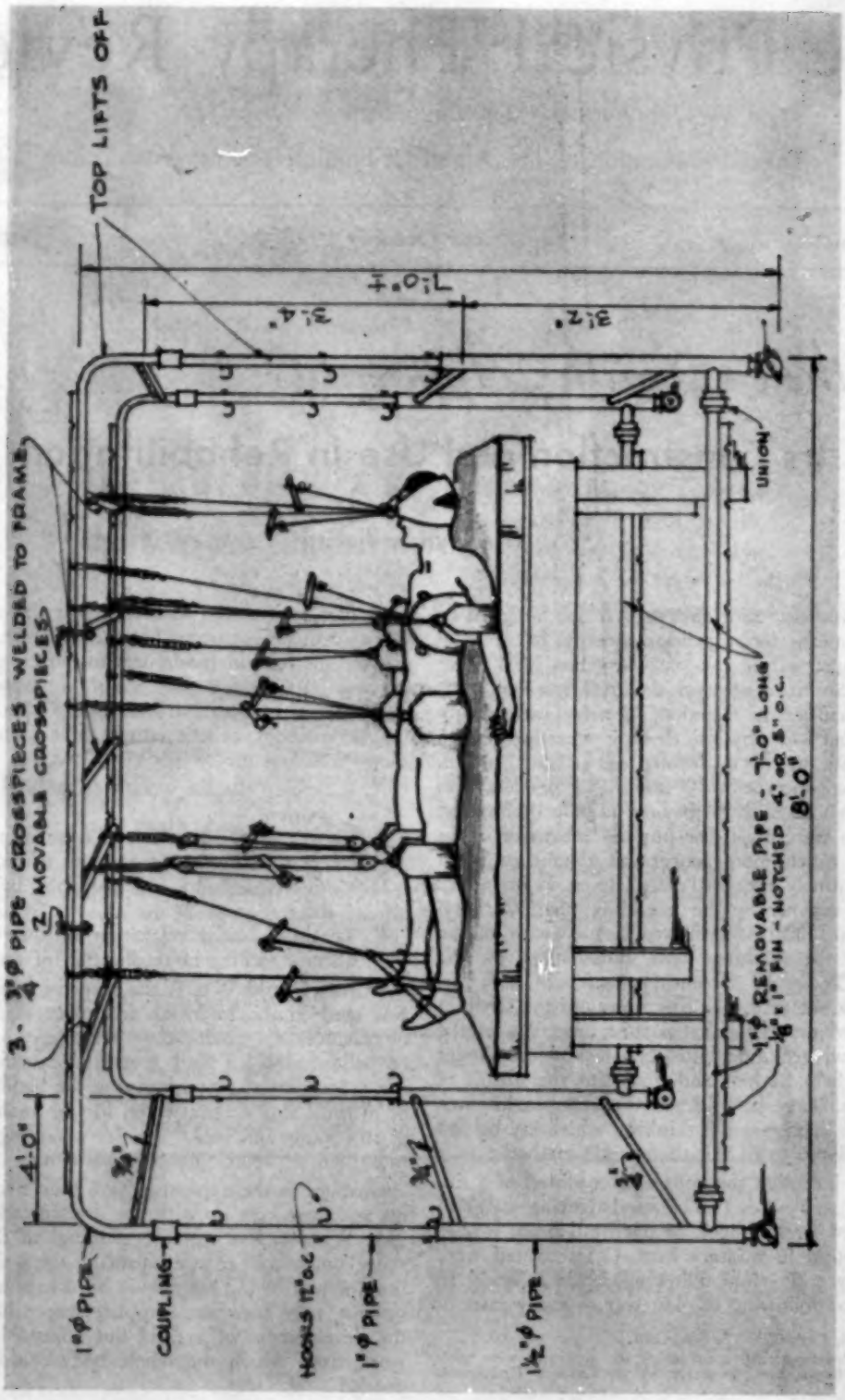

Figure 1. Guthrie-Smith suspension frame. Pipe—demountable. Modified by K. S. Bier.

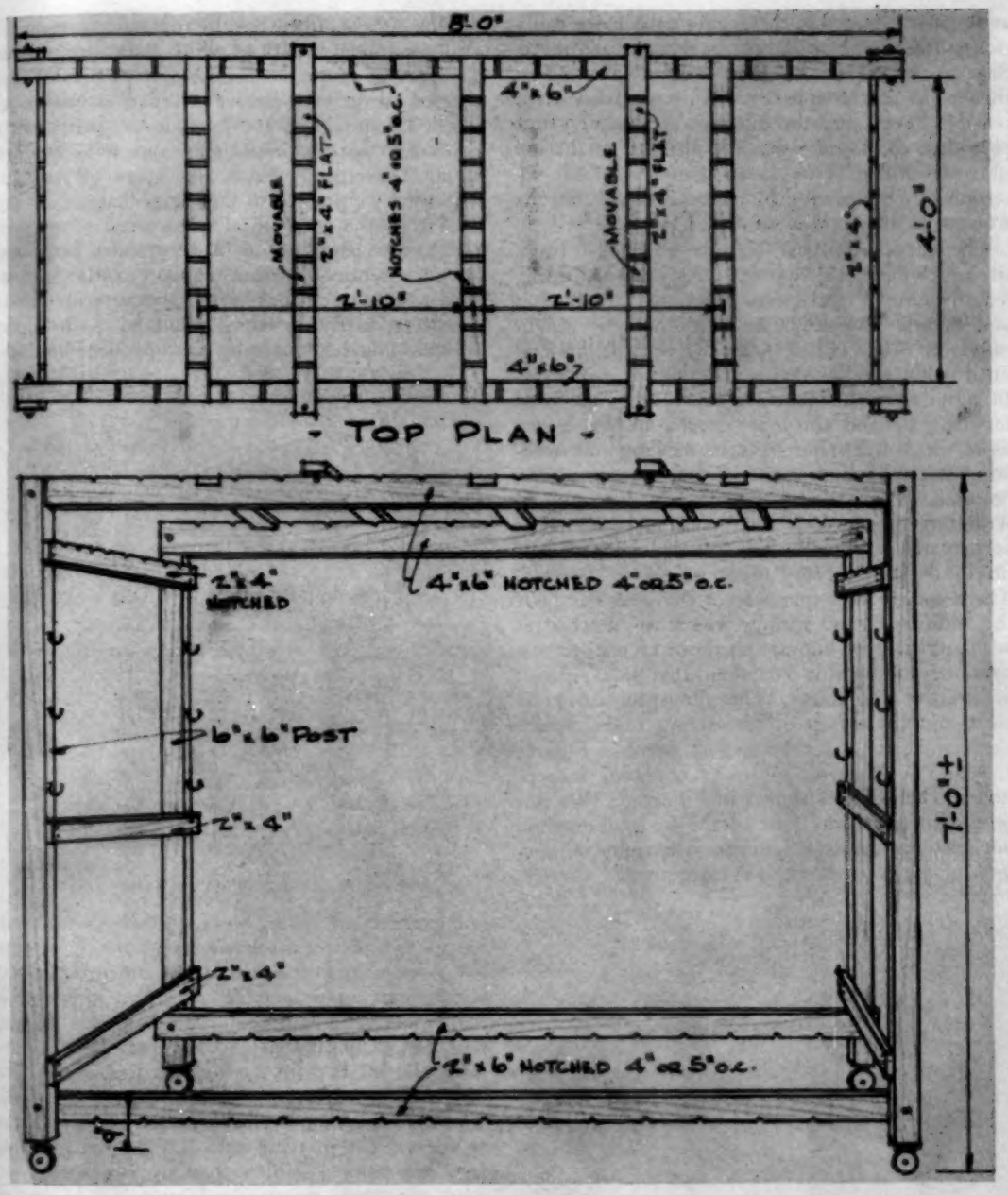

Figure 2. Guthrie-Smith suspension frame, wood alternate. (Casters are optional.) Modified by K. S. Bier.

The present "standard" suspension apparatus is a framework of light-gauge pipe seven feet high and eight feet long. It is made to stand independently but to cover a bed or plinth. The top pieces, both transverse and longitudinal, and the bottom longitudinal pieces are notched to receive the supporting hooks. These notches are placed four or five inches apart. Their depth and width will depend on the size hook used. They should be deep enough so that the hook cannot slip out and just wide enough to receive the hook so that no lateral slip is allowed. Hooks placed at intervals on the top and bottom uprights have been found useful for anchoring the ropes in certain exercises. The

author has found that the apparatus is more easily transported if the two lower bars can be removed. She also has found it useful to be able to adjust the height of the apparatus. This has been made possible by making the top unit of smaller gauge pipe than the lower unit. The uprights of the top unit are drilled at two inch intervals for the insertion of a supporting pin. Details of a substitute framework of wood is shown in Figure 2.

The suspension gear consists of hooks, rings, strong clothes line, wooden cleats for adjusting length of ropes, and canvas slings of various sizes and shapes. The slings are made of light weight canvas or heavy sail cloth backed with flannel and lined with window-shade material for stiffening. In hospital work where the same slings are used for many patients and it is desirable to have a material which will stand repeated washing and sterilizing, heavier weight canvas without the lining can be used. The innerlining prevents longitudinal wrinkling of the sling and the flannel backing is particularly desirable for patients with poor circulation and faulty sensory nerve supply to the skin. The most recent refinement of the gear has been the addition of coil springs which are attached at will to provide a buoyant medium of relaxed suspension, or to provide oscillatory, rhythmic, assistive or resistive movement. The slings for all body parts and the set-up of assembling ropes, hooks, cleats and springs can be seen in detail in Figures 3, 4 and 5. A simple means of obtaining suspension in the home is shown in Figure 6. This can be modified for any part of the body and while not adequate for total suspension is quite satisfactory for much work with the extremities.

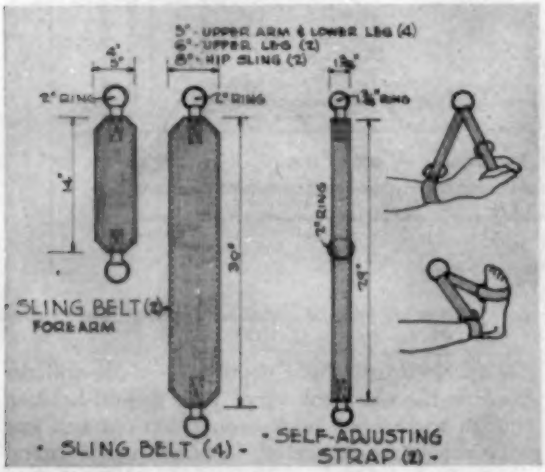

Figure 3. Guthrie-Smith suspension gear. Modified by K. S. Bier. (Note: Belts, straps and slings to be fabricated of window shade, flannel and canvas.)

Thus, the Guthrie-Smith apparatus consists of a simple framework from which the entire body or any part of it can be comfortably suspended and allowed movement—passive or active, assisted or resisted. By providing comfort for the patient in a position of rest, his initial reluctance to be handled at all is overcome. From this stage of rest and relaxation we proceed to show him that movement, free from the mechanical hindrances of friction, weight of a paralyzed or plaster-splinted limb, and the uncertainties of manual support can be painless. This assurance of movement without pain breaks up the reflex pattern which results in spasm in the affected muscles, guarding by opponent muscles,

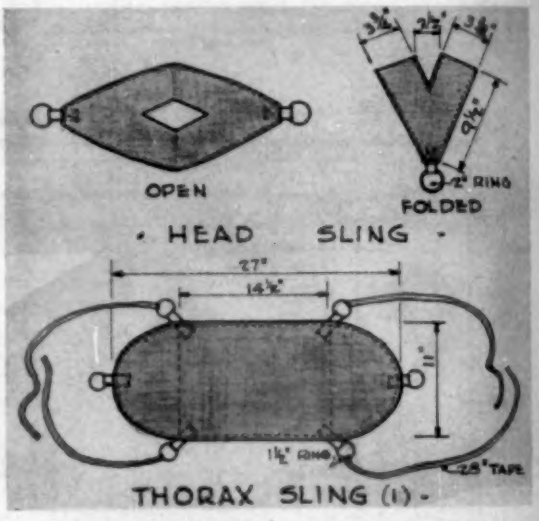

Figure 4. Guthrie-Smith suspension gear.

and exaggerated "fixing" of a joint. By these simple means the patient's subconscious as well as conscious cooperation is achieved. Movement he understands, e.g., movement of an entire limb rather than movement of a particular paralyzed muscle, has been demonstrated and his trust of the apparatus and his faith in the physical therapist render him a constructive force in his own rehabilitation. The object so far has been to sell the apparatus to the patient. Having sold it in terms of trust, rest, relaxation, painless passive movement, we must now show the patient how it will be instrumental in achieving active movement; for the least of these mean more to him than the most perfectly executed of passive exercises. Our aim is "what the patient wants for the patient." We begin with total suspension and/or gross passive movement of an entire limb or, even in the case of paraplegics, with swinging of the trunk and limbs by whatever back and abdominal muscles are available. The first requisite is to use all the patient has.

The constant swinging alternately contracts and relaxes the muscles until the patient begins to comprehend what is required; the *idea* of movement is begun and cortical functions stimulated. In a paralytic, this is like jogging the memory, and a bridge, however thin, is constructed from the patient's mind to the part of his body which hitherto has been isolated. The apparatus provides for smooth progression from passive through assisted active to active and finally to resisted exercise. From gross movement we come down to specific muscle and muscle group activity with exacting exercises which can be repeated accurately until a balance is brought about between flexors and extensors, abductors and adductors, and so forth. The apparatus is not a miracle instrument and is only as serviceable as the physical therapist is competent in its use; but the very simplicity of its construction and the ease with which familiar principles of physical treatment can be carried out make it an easily added technic. Once the patient is at ease in suspension, it is often he who becomes leader in the game of exposing the least remaining activity in muscles previously considered totally paralyzed.

The only other familiar suspension medium is water. Therapeutic suspension here has taken place either in a pool or Hubbard tank. It is our feeling that the apparatus under discussion has many advantages over the former and many more over the latter. The first and most important is an economic one. The Guthrie-Smith apparatus complete with suspension gear should not cost more than two hundred dollars. This figure, based on the cost of the apparatus built by the author's local plumber, is an encouraging one when compared to the cost of a pool or Hubbard tank. Wood frames, of course, should be more economical than those of light-gauge pipe. The upkeep of such an apparatus is essentially nil.

The second advantage is to be found in the ease of construction. The framework can be made from specifications by any local plumber or carpenter. Still better, either type of frame can be constructed as a part of your occupational therapy program. The suspension gear may be assembled by the user.

Other advantages are to be found in the following:

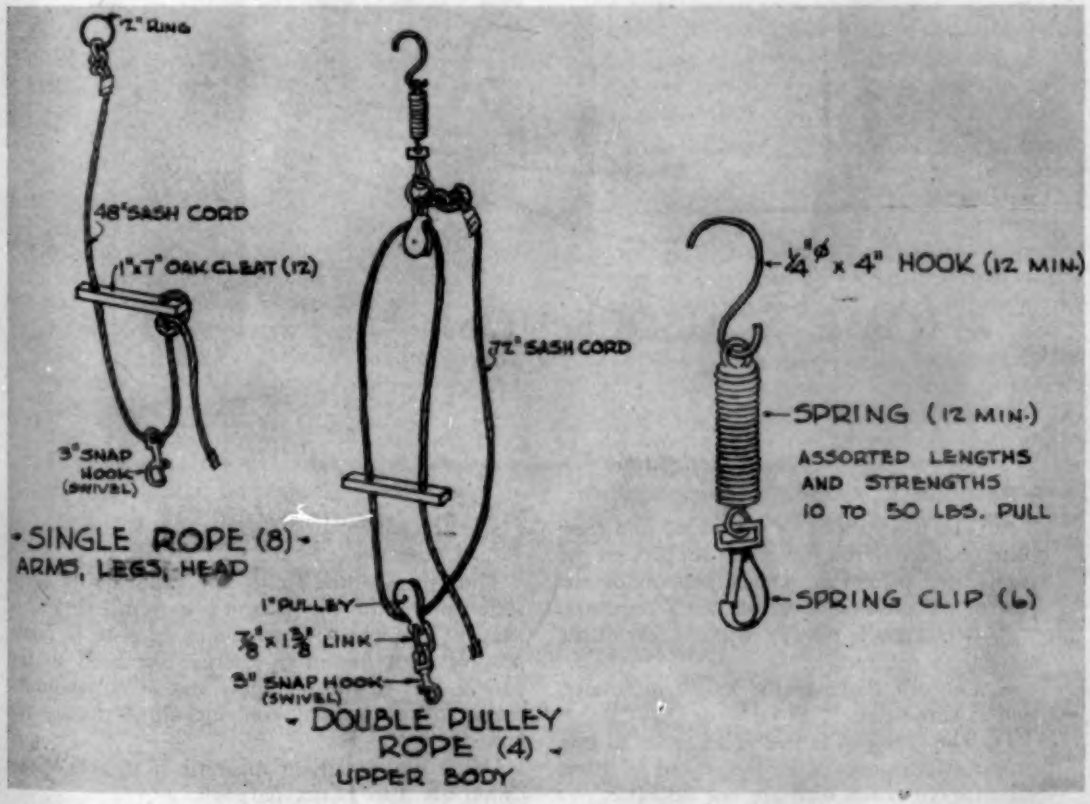

Figure 5. Guthrie-Smith suspension gear. Modified by K. S. Bier.

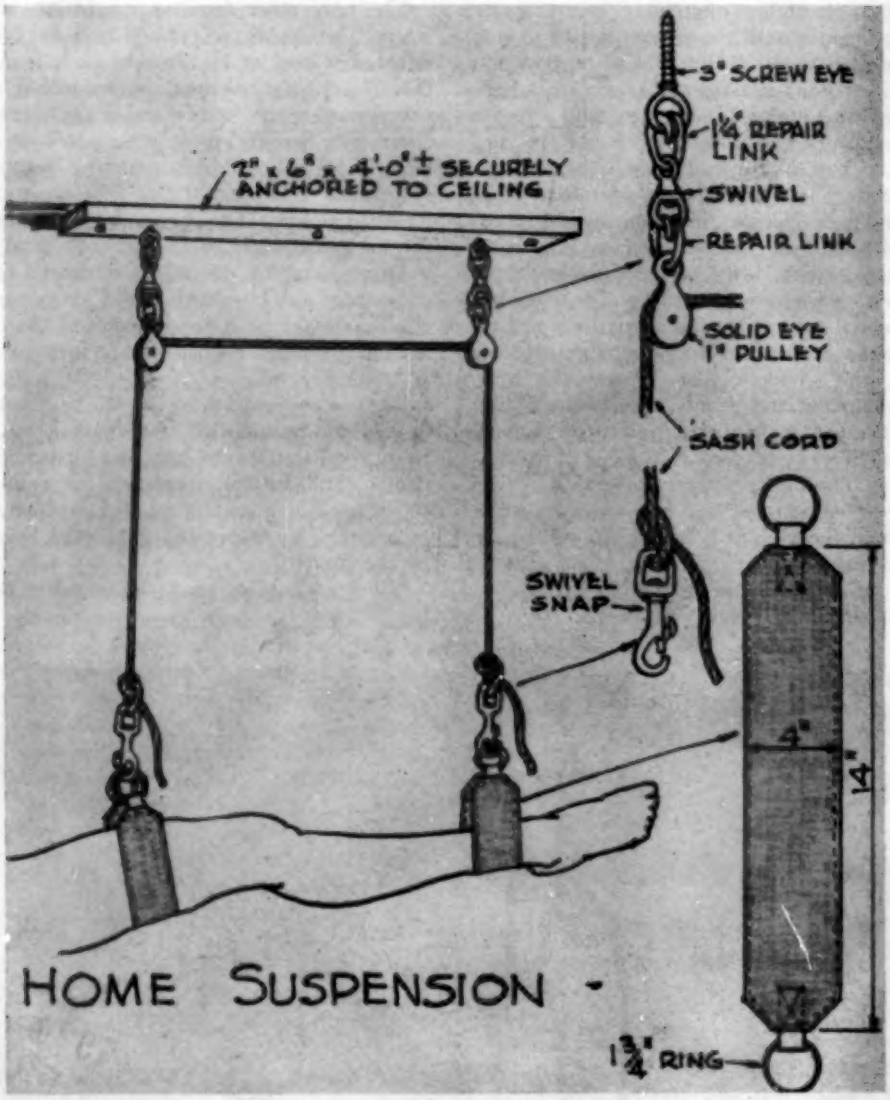

Figure 6. K. S. Bier suspension apparatus for the home.

A. The patient may be suspended in a complete position of rest, no active support on the part of the patient or manual support on the part of the physical therapist being necessary.

B. Relaxation is possible without fear of the suspension medium.

C. Concern about undue length of immersion is eliminated.

D. The therapist is free at all times to give proper stabilization or assistance and to detect substitutions when such are not desirable.

E. The range of motion allowed on the part of the patient in air suspension is complete in all directions.

Thus the Guthrie-Smith apparatus allows complete control of the patient's movements and a smooth progression to strenuous exercise is made possible with minimum energy cost both to the patient and to the therapist, and at a maximum saving of operational cost including man-power hours.

Use of the suspension apparatus in muscle reeducation has three major purposes:

A. To maintain the physical status of the

incapacitated patient, e.g., eutonic exercises can be used to promote and to maintain a sense of well being in a patient whose movements are hindered by a cast, traction, etc. The "well" components of the body cannot only be preserved in their physiological state of activity, but the future can be anticipated by development of special muscles which may be needed to render the patient ambulatory with a prosthesis, crutches and so forth.

B. To obtain fine grading of exercise for the after-treatment of recent injuries, e.g., in fractures of the leg, much activity is allowable if weight-bearing is eliminated and thus the undesirable sequelae of stiff joints and muscle atrophy minimized.

C. To obtain leverage and fixed points for the manipulation or correction of certain orthopedic conditions, e.g., manipulation of a stiff shoulder, correction of scoliosis and kyphosis.

In conjunction with the above the purposes of spring suspension are:

A. To add buoyancy to movement if hung vertically.

B. To provide assistive oscillatory movement of limited frequency and amplitude if hung vertically.

C. To provide resistance to movement if hung vertically, laterally, or below the patient.

TECHNIC OF SUSPENSION METHODS

Ways of suspending a limb which will favor (not hinder) movement:

A. *Axial suspension:* The limb rests in balance or equilibrium by placing ropes from the slings to one point of fixation directly over the joint. This allows freedom of movement on either side and is the best starting position for: (1) Testing voluntary movements; (2) obtaining the fullest range of joint movement, and (3) general treatments.

B. *Pendular suspension:* The fixation point is away from the true axis and so the plane of movement is no longer horizontal and the limb rises and falls slightly. The limb is no longer in equilibrium and this type of suspension can be either assistive or resistive. It is used (1) for focus on one particular group of muscles eliminating opponent muscles; (2) to allow graduation of activity; (3) for fixation adjusted so that active muscles are assisted or resisted; (4) to allow adjustment to special cases. The physiological advantages are: (1) increase tension in working muscles; (2) decrease in tension in antagonists; (3) increased angle of muscle pull; (4) advantage taken of "one way innervation." For example, if the abductors of a limb are weak, it is suspended in a starting position of abduction. Adduction is then carried out passively or actively after which the patient attempts abduction and is assisted by the tendency of the limb to return to its starting position.

Figure 7. Suspension in side-lying position: Can be used either for flexion and extension of hip and knee joints without springs or for adduction and abduction, assistive and resistive, with springs.

The use of springs in suspension:

A. *Short tension springs* are used in simple suspension to support the weight of various body parts and are so selected in varying strength. Mrs. Guthrie-Smith advises the following: Light tension springs for hands and feet; medium tension springs for head, thigh, and upper arm; strong tension springs for thorax and pelvis.

B. *Long spiral springs* (1) produce oscillatory movement and are an ideal suspension medium by which to balance out gravity; (2) by kinetic recoil can be used to assist muscle work against gravity. For example, if the quadriceps is presumed to be totally paralyzed, kinetic recoil can be used both to test and to strengthen it as follows: the thigh is placed on a hard pillow and the foot supported by a long spiral exercise spring attached in the sling set up. The leg is extended with the knee straight. The physical therapist then places one hand on the quadriceps and with the other hand pushes the foot down toward the plinth until the spring is well stretched. This places the quadriceps under stretch and if the foot is now released it will be pulled up by recoil of the spring at which time even

a trace of activity in the quadriceps will be palpated. Frequent repetition of this procedure will provide adequate exercise to strengthen the muscle. (3) They are used as variable resistances.

TESTS

Oscillatory Test:—When set in motion by the physical therapist the normal, relaxed limb supported in axial suspension will come to rest after eight to twelve oscillations in the horizontal plane. If the patient can assist in this movement, oscillations will be increased in number and thus the ability to move is demonstrated.

Halt Test:—The limb is swung passively or actively. Then halt is called. Ability to stop swinging the limb indicates a good deal of real recovery of motor power. The latent period between signal and stop gradually diminishes as the patient recovers.

CASES FOR SUSPENSION THERAPY

A. Paralyses
   1. Spastic
   2. Flaccid
   3. Mixed
      Infantile paralysis
B. Contractures
C. General Orthopedic
   1. Scolioses
   2. Spondylitis
   3. Post-fractures, early
   4. Sacro-iliac and low back strain
   5. Spinal deformities
   6. Arthritis
D. Amputations
   1. Exercises
   2. Protheses
E. Incoordinations: reeducation in walking, rhythm.
F. Rehabilitation of convalescents.

CASE I: QUADRIPLEGIA*

History:

Male, age 25, injured six years ago in a diving accident, suffering fractures of the 4th and 5th cervical vertebrae. Resultant injury to spinal cord left patient a complete quadriplegia. At the present time the upper trapezii, deltoids, and biceps brachii on both sides are normal. Remaining musculature in the upper extremities and back range from trace to good. The diaphragm and abdominals are poor. All muscles in the lower extremities range from trace to poor.

*The procedure given for a quadriplegia may be used for all other cord lesion cases if minor changes are made depending on the parts of the body needing exercise.

Exercise Routine:**

I. Type of Suspension—Total, axial fixation (pendular fixation as desired in specific exercises)
   A. Passive exercise without springs
      1. Position of patient: back-lying
         a. Mechanical procedure—use the following slings:
            (1) Head sling
            (2) Elbow slings, two
            (3) Hand-wrist slings, two
            (4) Back sling, one
            (5) Hip sling, one
            (6) Knee slings, two
            (7) Foot-ankle slings, two

            The above slings are attached by hooks and ropes to the overhead frame directly above the point to be suspended. The arms are moderately abducted, the elbows in slight flexion, and the forearms pronated. The legs are in slight abduction.
         b. Exercises
            (1) With body completely raised from plinth, swing gently from side to side. Patient may be asked to attempt general swinging.
            (2) Swing the legs in opposition to the body.
            (3) Swing arm as a whole. Swing forearm in opposition to upper arm.
            (4) Lower hips and legs to plinth. Swing trunk.
            (5) Lower trunk, raise hips and legs. Swing.
            (6) Lower hips to plinth. Abduct and adduct legs.

            Note: In the above exercises the patient is asked to think of the "feel" of such movement.
      2. Position of patient: Side-lying
         a. Mechanical procedure—use slings as in total suspension, back-lying, with the exception of enclosing legs together in single knee and foot-ankle slings.
         b. Exercises
            (1) With body completely raised from plinth swing gently back and forth.
            (2) Swing legs in opposition to body.
            (3) Lower hips and legs to plinth. Swing trunk.
            (4) Lower trunk, raise hips and legs. Swing.
            (5) Swing lower legs in opposition to upper.

**The exercises listed are given in order of their progression.

B. Passive exercise with springs
1. Position of patient: back-lying
a. Head
(1) Mechanical procedure — body on plinth, head and thorax elevated. Medium light springs attached to suspending hook.
(2) Exercise—If patient is able, he is asked to extend neck against resistance of spring and flex as the spring recoils. If he is unable to do so, the therapist puts the spring on a stretch, thus passively hyperextending neck, and the patient is asked to flex as the spring recoils.
b. Trunk
(1) Mechanical procedure — hips and legs on plinth; head and thorax elevated. Medium heavy springs attached to hooks suspending thorax. Head springs as above. Arms may be enclosed in trunk sling.
(2) Exercise
(a) *Rectus abdominis:* Back is passively hyperextended by therapist. As spring recoils the patient is asked to attempt trunk flexion.
(b) *Lateral abdominals:* Shorten right rope thus elevating right side of trunk above the level of the left. Move right hook over toward left side. Exercise as in (a). Return right hook to original position. Move left hook toward right and elevate left side. Repeat exercise.
c. Shoulders and Arms
(1) Deltoid
(a) Mechanical procedure: Place long spiral spring on hook supporting elbow sling. Reattach hook at point above and back toward patient's head. Forearm is bent at right angle and enclosed in elbow sling.
(b) Exercise: Therapist adducts arm. As spring recoils, patient attempts abduction.
(2) External rotators
(a) Mechanical procedure: Place long spiral spring between hook and rope supporting hand-wrist sling.
(b) Exercise: Therapist internally rotates arm. As spring recoils patient is instructed to attempt external rotation.
(3) Triceps
(a) Mechanical procedure: Spring as in (1) (a). Hook supporting hand-wrist sling is moved down and back toward patient's head so the elbow is in extension, forearm pronated.
(b) Exercise: Therapist manually fixes upper arm at point just above elbow. The elbow is passively flexed and as spring recoils patient is instructed to attempt extension.
(4) Biceps
(a) Mechanical procedure: Spring as in (1) (a). Attach hook supporting hand-wrist sling at point over wrist when arm is abducted and elbow moderately flexed, forearm supinated.
(b) Exercise: Therapist extends elbow and as spring recoils patient attempts flexion.
(5) Wrist flexors
(a) Mechanical procedure: Long spiral spring attached to hook supporting hand. Sling support just above wrists and elbows, forearm supinated.
(b) Exercise: Therapist manually fixes flexor surface of forearm just above wrist. The wrist is passively extended and as the spring recoils, patient attempts flexion.
(6) Wrist extensors
(a) Mechanical procedure: as above but with forearm pronated.
(b) Exercise: Fixation as above. Wrist is passively flexed and as spring recoils, patient attempts extension.
d. Hips
(1) Hip flexors
(a) Mechanical procedure: Attach springs of medium length and strength to hooks supporting knees and ankles. Arms and trunk on plinth; legs elevated.
(b) Exercise: Therapist extends legs from hips. As springs re-

coil patient is asked to attempt flexion.

Note: Therapist may find simultaneous exercise of both sides more easily accomplished by enclosing both knees in a single sling and both ankles in a similar one.

(2) Abductors

(a) Mechanical procedure: Springs as in (1) (a) above. Move hooks suspending knees and ankles as far toward either side as possible.

(b) Exercise: Therapist abducts leg. As spring recoils patient attempts adduction. Note: right adductors are exercised in a similar manner by attaching hooks over toward left.

e. Knees

(1) Quadriceps

(a) Mechanical procedure: Place sandbags just above both knees. Lower upper legs until resting on this support. Leave long springs of medium strength attached to hooks supporting foot-ankle slings. Lower legs elevated so that knees are extended.

(b) Exercise: Therapist pushes lower legs toward plinth thus flexing knees and stretching springs. As the springs recoil, patient attempts extension. Note: Unless a single sling is used to support the ankle, the therapist will find this exercise more efficiently carried out on one leg at a time.

f. Ankles

(1) Dorsiflexors

(a) Mechanical procedure: Long spiral springs with handle attached are hooked to slings supporting feet. Legs and trunk on plinth. Patient grasps handles.*

(b) Exercise: Therapist plantarflexes feet. As springs recoil patient attempts dorsiflexion.

(2) Inversion, left

(a) Mechanical procedure: As above, patient grasps handle of spring supporting left foot with right hand, arm abducted.

(b) Exercise: Therapist everts left foot. Patient attempts inversion as spring recoils. Note: For inversion on right, patient holds handle of spring supporting right foot with left hand. Exercise as above.

(3) Eversion, left

(a) Mechanical procedure: as above. Patient grasps handle of spring supporting left foot with left hand, arm abducted.

(b) Exercise: Therapist inverts foot. Patient attempts eversion as spring recoils. Note: For eversion on right, patient grasps handle in right hand.

2. Position: side-lying

a. Lateral flexors of trunk.

(1) Mechanical procedure: Place springs of medium length, moderately strong tension, on hooks supporting trunk; long spiral spring to hook supporting head. Hips and legs on plinth; trunk elevated.

(2) Exercise: Therapist returns trunk to mid-position. Patient attempts lateral flexion as spring recoils.

b. Hip abductors

(1) Body and underneath leg on plinth. Top leg elevated with knee and foot ankle slings to which long springs of medium strength are attached.

(2) Exercise: Therapist adducts leg. As spring recoils patient attempts abduction. Note: Gluteus medius may be more completely exercised by attaching hooks at a point above knee and ankle so that the hip is moderately hyperextended before exercise is begun. If the patient is left-side-lying, this is accomplished simply by moving the hooks to the right. To bring the tensor fascia lata more into play, the hip should be in slight flexion before exercise is begun.

c. Hip adductors.

(1) Mechanical procedure: Body and upper leg on plinth. Underneath

*If patient is unable to grasp handle, the springs in the following ankle exercises must be attached with ropes and fastened to the frame in a position which will give the necessary angle of pull.

leg elevated. Spring as above.

(2) Exercise: Therapist abducts leg. As spring recoils patient attempts adduction.

C. Active exercises: The routine given above for passive exercises may be continued after there has been return of voluntary muscle power. The patient, if able, may initiate the movement and complete the range of motion. The number of contractions per exercise period may be gradually increased as power returns. Use of the "halt" test is advocated as an indication of voluntary control.

D. Resistance exercises: Antagonists of those muscles listed for exercise under "B" above will be given resistance by use of springs in the positions indicated.

CASE II: ANTERIOR POLIOMYELITIS

History:

Female, age 16. Patient contracted poliomyelitis in 1945. The right leg, which was primarily affected at that time has shown good return of function with the exception of the abductors (hip) which at the present are rated as poor.

Exercise Routine:

I. Type of suspension: partial, pendular fixation

A. Active assistive exercise without springs

1. Position: back-lying

a. Mechanical procedure: Place slings under right knee and around foot and ankle. Attach hooks to overhead frame at a point to right side of limb. Attach ropes to slings. Elevate leg.

b. Exercise procedure: Patient actively abducts leg, letting natural pendular momentum return it to mid-line. Note: Placing the point of attachment of the slings to the side, rather than directly over the knee and ankle means that the leg is elevated in a position of partial abduction before the exercise is begun. Thus the active musculature is given the advantage of an increased angle of pull in initiating the movement, as well as the aid of produced momentum in continuing the exercise once begun.

2. Face-lying

a. Mechanical procedure: As above. It may be well to elevate the hips in which case the therapist should stabilize the right hip during the exercise.

b. Exercise: As above. Since the tensor fascia lata acts as an abductor primarily in a position of flexion, the exercise described under "1" may be considered to primarily activate this muscle. For this reason it is advisable to perform both back and face lying exercise in one period. The latter would tend to bring the gluteus medius more directly into play since it acts best as an abductor in extension.

B. Active assistive exercise with springs

1. Position: left, side-lying

a. Mechanical procedure: Place medium length and moderate strength springs on hooks suspending knee and ankle. Sling arrangement as above.

b. Exercise: Patient adducts leg thus stretching the spring. As recoil takes place the patient actively participates in abduction. Following the natural recoil frequency of the spring there will be alternating adduction and abduction until the kinetic energy of the spring is exhausted. In this the patient continues to assist to his utmost in abduction but is passive in adduction to avoid further exercise of this already over-powerful muscle group.

2. Position: back and face-lying

a. Mechanical procedure: As in "1 a" and "2 a" with spring attached as above.

b. Exercise: As described.

C. Active resistive exercise.

1. Position: right, side-lying

a. Mechanical procedure: Elevate right leg with slings and spring as described.

b. Exercise: Patient abducts leg against resistance offered by the spring.

SUMMARY

1. The Guthrie-Smith apparatus consists of a rigid framework with suspension gear of hooks, rings, rope, wooden cleats, and canvas slings.

2. The apparatus is simple and economical to construct and necessitates no appreciable upkeep expenditure.

3. Suspension may be either total or partial with either axial or pendular fixation, with or without springs.

4. In muscle reeducation the purposes of suspension therapy are:

a. To maintain the physical status of the incapacitated patient.

b. To obtain finely graded exercise in the after-care of recent injuries.

c. To obtain leverage and fixed points in the correction of certain orthopedic conditions.

5. The purposes of incorporating springs of various lengths and strengths into the usual sling systems are:

a. To give the feeling of buoyancy in either rest or movement.
b. To provide assistive oscillatory movement and thus aid muscle consciousness.
c. To provide resistance to certain muscular activity.

6. Exercises permissible with the apparatus range from passive, through active assistive, to resistive. These can be easily and accurately accomplished since:

a. The weight of a limb or body is balanced out by sling suspension.
b. Friction is eliminated.
c. Accurate fixation is possible both by the method of sling attachment to the frame, and manually, since the physical therapist is free to stabilize at any point desired.
d. Springs of different lengths and strengths may be so placed in the system as to afford graded resistance.

7. It must be remembered that movement begets movement and for this reason as well as for the psychological effect it is suggested that exercise routines begin with gross movement, allowing substitutions if necessary. Specific exercises should follow.

8. In the author's experience the Guthrie-Smith apparatus has been invaluable in the initiation of movement following recent fractures, in muscle reeducation following nerve injuries and poliomyelitis, in the rehabilitation of cases with spinal cord injuries resulting in quadriplegia and paraplegia, and in cases of cerebral accident resulting in hemiplegia.

BIBLIOGRAPHY

1. Guthrie-Smith, Olive F., M.B.E., C.S.P., T.M.G.: Rehabilitation, Reeducation and Remedial Exercises. Bailliere Tindall & Cox, London, 1945 (reprint).

REPRINTS AVAILABLE

One free copy of each scientific reprint (except the History of the American Physiotherapy Association and the Anterior Poliomyelitis Issue of the REVIEW will be provided upon request to all members, students in the approved schools and libraries. A small charge is made as indicated to nonmembers. The information brochures are available to all without charge. To obtain reprints write: American Physical Therapy Association, 1790 Broadway, New York 19, N. Y.

PHYSICAL THERAPY, A SERVICE AND A CAREER
An illustrated brochure, describing the opportunities for a career in physical therapy, available scholarships and educational requirements for entering a school of physical therapy. (Made available through National Foundation for Infantile Paralysis funds.)

OUR ASSOCIATION
An informational booklet on the activities, scope and services of the American Physical Therapy Association.

PHYSICAL THERAPY
A question and answer article covering the usual queries received on physical therapy.

PHYSICAL THERAPY—*Suggestions for Prospective Students.*
Outlines the professional course of study for college students preparing for physical therapy.

PHYSICAL THERAPY SECTION: *Its Scope and Employment Opportunities.*
This consists of 12 articles by various contributors on physical therapy in a state crippled children's service, public health service, the cerebral palsy field, the Veterans Administration, the industrial clinic, a curative workshop, a large general hospital, a small general hospital, a children's hospital, crippled children's schools, the physician's office or clinic group and the psychiatric field.

PERSONNEL POLICIES FOR QUALIFIED PHYSICAL THERAPISTS
Suggestions as to salary, hours, vacations, etc., by the American Physical Therapy Association.

ETHICS FOR THE PHYSICAL THERAPIST: *From the Point of View of the Medical Practitioner.*
HELEN HARDENBERGH, M.D.

APPROVED SCHOOLS OF PHYSICAL THERAPY
A list of schools approved by the Council on Medical Education and Hospitals of the American Medical Association.

THE PRESCRIPTION OF PHYSICAL THERAPY
JESSE WRIGHT, M.D.

CARE OF PATIENTS WITH INFANTILE PARALYSIS: *Correlation in the Nursing and Physical Therapy Services.*
CARMELITA CALDERWOOD HEARST (5c)

POSTURE TRAINING FOR ADOLESCENTS
CAROLYN BOWEN (5c)

PHYSICAL THERAPY AND CHEST SURGERY
FLORENCE S. LINDUFF. (10c)

POSTNATAL TREATMENT WITH MASSAGE AND EXERCISES
NINA KELLGREN. (5c)

PHYSICAL THERAPY IN THE TREATMENT OF NEUROSURGICAL CONDITIONS: *With Special Reference to New Electrodiagnostic Measures.*
EDNA L. DILLON. (10c)

PHYSICAL THERAPY MANAGEMENT OF LOWER EXTREMITY AMPUTEES.
PAIGE WEAVER. (10c)

WALKING TRAINING OF THE AMPUTEE: *Some Biochemical Considerations.*
SIGNE BRUNNSTROM. (10c)

BED EXERCISES IN EARLY CONVALESCENCE AND AMBULATION.
NILA K. COVALT, M.D. (10c)

THE PHYSICAL THERAPY REVIEW—*Special Anterior Poliomyelitis Issue.* July-August 1947 (75c)
The magazine contains 11 articles by leading physicians and physical therapists on research and treatment of polio. There are 16 abstracts of articles on polio from current medical journals.

A HISTORY OF THE AMERICAN PHYSICAL THERAPY ASSOCIATION.
IDA M. HAZENHYER. (50c)
An account of the Association's activities and growth from 1921-1946.

THE PHYSICAL THERAPY REVIEW—*Special Cerebral Palsy Issue.* May-June 1948 (75c)
This magazine contains 8 articles by leading physicians and physical therapists on research and treatment of cerebral palsy. There are 5 abstracts of articles on cerebral palsy from current medical journals.

The Physical Therapist and Co-Workers

In the Treatment of Poliomyelitis

Lucille Daniels

During the past three decades, physical therapy has become increasingly important in the care of the patient with poliomyelitis. At the present the work of the physical therapist begins as soon as the first acute symptoms of the disease have subsided and usually continues until the final discharge of the patient from medical care. This may involve long months or years of careful training to restore neuromuscular control of involved parts to patterns which are as nearly normal as possible. In cases which result in extensive residual paralysis, the individual is assisted by every means to learn to carry on daily activities with optimum skill and efficiency with the muscle power that remains.

The physical therapist who gives treatments daily or several times a week over a long period, both while the patient is in the hospital and later when he is sent home, has an excellent opportunity to become thoroughly familiar not only with the physical problems involved but with the patient's personality and environment and his reactions to all phases of his daily program. She must understand the part her co-workers in allied fields play in the total treatment program and cooperate with them in every possible way. As she watches closely the physical progress of the patient and knows his capacities and limitations she is in a position to make suggestions regarding his schedule and activities. She should be of particular assistance to the physician, who ordinarily sees the patient at less frequent intervals than does the physical therapist.

In the treatment of poliomyelitis the physical therapist must apply many of the skills of her armamentarium. In no other disease in which physical treatment is indicated is there the need for a greater variety of expert and exacting treatment procedures. The physical therapist must be able to measure accurately joint range and muscle strength in order to plan treatment and to keep clear records of progress. She must be thoroughly familiar with normal patterns of motion in order to prevent substitution of unwanted muscles. She must use fine judgment regarding the patient's tolerance in giving exercise and stretching. She often will be called upon to analyze phases of abnormal gait and to make suggestions for greater efficiency and smoothness in walking as well as in other activities involving locomotion. She must be aware of the many types of deformity which may result from unreleased muscle shortening or loss of muscle power and make every effort to prevent the development of these potential disabilities. The physical therapist must do her work with care and thoroughness in order to fulfil her important role in the treatment of the poliomyelitis patient.

In past years physical therapists have made considerable contribution to the knowledge of the technics used in this field. In 1912, an article entitled "Muscle Training in the Treatment of Infantile Paralysis" was written by Wilhelmina G. Wright and published in the *Boston Medical and Surgical Journal*. It was later revised by Miss Wright and republished by the U. S. Public Health Service. Since that time, many aspects of physical treatment have been dealt with, particularly phases of therapeutic exercise, for example: muscle testing, gait training and functional activities. These publications have been of great value to all those dealing with the physical treatment of the patient.

Other types of professional workers have been equally active in making available information in written form that has added to the knowledge of the care of the poliomyelitis patient. Many aspects of nursing, psychological, social and vocational problems have been discussed and analyzed in detail. As a result of attention focused on these subjects, modern treatment of this disease has become broader and more intricate, requiring careful cooperation of well trained professional personnel in all fields.

The division line between the acute and convalescent stages seems to be largely arbitrary. Physical

Associate Professor and Director, Division of Physical Therapy, Stanford University, Calif.

Read before the Clinical Conference on Poliomyelitis, Georgia Warm Springs Foundation, Warm Springs, Ga., September 1947.

therapy may be instituted as early as possible with due regard paid to the patient's systemic symptoms.

TREATMENT DURING THE ACUTE STAGE

The objectives of treatment are: to relieve pain and sensitivity, to prevent deformities, and to assist the patient in retaining normal patterns of movement.

The first objective usually can be attained by the use of hot moist packs. Their application may be the responsibility of the nurses or, in some instances, nonprofessional personnel. The physical therapist is responsible for teaching the pack procedures to one or both of these groups. Hot baths sometimes are used to supplement packs. In some instances the patient may not respond well to packs, and baths may be used altogether.

Proper bed position and the use of early passive motion as soon as the patient's general condition permits aid in preventing deformities. When muscle spasm and sensitivity are found the physical therapist must carefully determine the range of motion possible within the limits of pain and attempt gradually to increase this range. The addition of gentle forcing may be permissible as the hyperirritable condition subsides. In this way pathological changes in the joints are kept to a minimum and muscle shortening is not permitted to become permanent.

By the use of early passive motion and a gradual transfer to active motion when muscle function is present, the patient may be able to retain to some degree the normal patterns of movement. In this phase, care must be taken not to elicit pain by movement. Muscles that are extremely sensitive may not have a pain free active range and will require further treatment for this symptom before active exercise can be started.

The patient in the respirator presents a difficult problem because motion is restricted by limited space. Maximal joint motion compatible with the patient's condition and the dimensions of the respirator should be carried out at frequent intervals to combat changes and permanent muscle shortening. Some movements may be given through the portholes but these are limited for all but small children. Such short periods of time as the patient may be out of the respirator should be utilized as much as possible. The use of the rocking bed, described by Dr. Jessie Wright[1], for the patient with respiratory difficulty permits freer movement and consequently more efficient treatment may be given.

The physical therapist makes accurate records of the ranges of joint motion and the elongation of muscles that pass over two or more joints. Limited tests for function are used before the patient's condition will allow a detailed muscle test. These may be obtained by checking the first few degrees of motion from the anatomical position. An approximate grading is given which may be verified later when the range of motion becomes complete. Such information will be of value to the physician in prescribing further treatment and in judging the efficacy of that already given.

In the early part of the acute stage, the physical therapist's contacts with other professional personnel are limited almost entirely to those with the physician and the nurse. In the latter part, as the gradual transition into the convalescent stage begins, other professional groups enter the picture.

The physical therapist must work closely with the physician particularly during this period of treatment. In order that she may carry out his orders most effectively she should review the patient's history and be familiar with his condition at the time treatment is given. She may obtain information by making rounds with the physician and by careful study of the patient's record.

A clear prescription for treatment from the physician is essential and it is the responsibility of the physical therapist to obtain full information regarding types of exercise and stretching indicated, objectives desired in treatment, and any precautions that may be necessary.

Close observation of the patient's reaction to treatment is imperative, and any abnormal changes in condition should be reported immediately to the physician. These might include marked increase or decrease in pain and sensitiveness, or added limitation of joint motion.

Progress notes and the results of any tests given by the physical therapist must be carefully recorded. By this means the physician saves valuable time and gains a more complete picture of the day to day development of the patient's condition.

Certain of the physical therapist's responsibilities in regard to the nurse will depend upon the background of the nursing personnel. The physical therapist should assist in the arrangement of bed positions. If the nurses have not had special orthopedic training or previous supervised experience with poliomyelitis, it may be well to meet with them in a group and review the principles of body mechanics in relation to bed posture. She may explain the tendency of certain muscle groups to shorten and of others to be stretched as a result of improper bed positions and show how these conditions may be avoided. She may suggest methods of handling patients in such a way that painful and sensitive muscles will be protected.

Cooperation with the nurse in arranging schedules of treatment so that nursing care will not be

interfered with is desirable. A written daily schedule is very helpful in avoiding confusion and loss of time. If the physical therapist is working in the contagious disease section she should make certain she is familiar with the particular procedures of contagious technic followed by the group in that unit and adhere to them carefully.

TREATMENT DURING THE CONVALESCENT STAGE

During this period the primary objectives of physical therapy are to prevent and correct deformities, to obtain smoothness in group muscle function, and to develop maximum strength and endurance in the affected muscles.

To attain the first objective the physical therapist attempts to gain a normal range of motion in all joints. This usually can be accomplished by careful forced motion which is carried out by the physical therapist and, when possible, by the patient. Particular attention should be given to muscles which pass over two or more joints as shortening may not be evident unless both or all joints are considered in the elongation of the muscle. A routine check on range of motion for individual joints is not always adequate for such muscles. In stretching, care should be taken to isolate those muscles which show evidences of shortening. Stabilization must be used in order to prevent undue strain on adjacent joint structures. Forcing without sufficient protection of adjoining muscles or joints beyond the normal range of motion can be harmful to the patient.

In those cases which do not respond to ordinary stretching procedures splints sometimes are used to apply constant pressure over longer periods of time. In the prevention of deformity particular attention must be given to the strains and stresses resulting from the vertical position. Sitting balance, standing balance and walking must be supervised closely to prevent abnormal deviations.

As soon as sensitivity disappears a detailed muscle check can be made. The degree of strength and the presence of contracture or residual spasm should be determined in each muscle or group in order that a record of the patient's exact condition will be available in his chart. These tests, repeated at intervals, provide a valuable record of the patient's involvement and progress during the recovery period.

Muscle strength, endurance and smoothness in group muscle function in all parts of the body are increased by various types of carefully graded exercise. Assistive, free and resistive exercises are fitted to the muscles or muscle groups according to the condition of each. Guided functional activities are carried out repeatedly in order to gain skill in performance. Balancing and walking are started early to prevent disuse atrophy and to obtain normal neuromuscular patterns of locomotion in so far as possible.

When the patient sits in a rest position the back and feet should be supported. A roll should be placed under the knees to prevent posterior rotation of the pelvis and tipping of the head and shoulders forward. Having the patient sit on the side of the bed a number of times during the day for short periods is of value in helping him to become accustomed to the upright position and in gradually building up his endurance. After sitting becomes stable the trunk weight may be shifted away from the vertical in various directions to strengthen trunk musculature and to serve as a preliminary aid to walking.

Considerable practice in standing balance should precede walking when there is extensive weakness in the lower extremities and trunk. Correct alignment is emphasized and practiced before steps are taken. Weight shifting should precede actual walking and if there is abnormal body listing or malalignment of segments, supports such as crutches or canes may be used. When walking is started it often is necessary for the physical therapist to assist the patient manually in carrying out the normal sequence of movements until a smooth pattern of motion is established. As distance is gradually increased to build up endurance, the patient never should be allowed to tire to the extent that weaker muscles fail to function properly and good alignment of segments is lost.

Treatment of the patient in water is valuable in both the acute and convalescent stages of poliomyelitis. However, its function may be quite different in the two periods. In the early stage, the effects of generalized application of heat for short periods may be of primary importance. This treatment may be used to supplement hot packing, as has been mentioned previously, or it may replace it for relief of muscle spasm and sensitivity. As a pain free range of motion in the affected segments gradually returns, exercise may be initiated as the patient's condition permits. The temperature of the water may be slightly lower after pain in the muscles has disappeared. Ninety to 94 degrees will prevent chilling of the patient[2].

In order to guide the patient to best advantage the physical therapist treating the patient in the pool must be thoroughly familiar with all the possibilities of carrying out underwater exercises. She must be particularly careful that adequate stabilization is obtained in order to isolate action in the desired muscles. By utilizing the resistance and the buoyant force of the water all grades of free, assistive and resistive exercise may be devised.

Before the discharge of the patient from the hos-

pital, the physical therapist frequently has the responsibility of teaching a member of the family to carry out the exercise program including stretching and supervision of walking. Emphasis should be placed on careful application of technics, close observation of the patient reaction to fatigue and regulation of the time allowed for various activities.

The outpatient who returns to the hospital clinic or physician's office for treatment or the patient who is treated entirely at home offer added responsibility. The physical therapist usually sees the patient more often than any of the other personnel and often acts as liaison officer between the patient and the physician. She must be sure that the patient is seen regularly by the physician and bring to his attention the many things that may become evident between these visits.

Emphasis is placed on teaching functional activities as early as possible. The resulting independence is not only of practical value to the patient but also is of psychological importance. The ability to carry out purposeful activities gives the patient a sense of accomplishment and self confidence which is essential for maximal recovery.

The physical therapist's responsibility in the treatment of the patient with poliomyelitis is an important one necessitating the greatest skill in the administration of a variety of treatment procedures. Her work must be thorough and her records accurate so the physician in charge of the case may rely upon them with confidence. She must be observing in order to detect slight changes in condition and she must use imagination in planning treatment so that it does not become a meaningless routine. She must work closely with all those concerned in the patient's care and do all in her power to assist with the entire treatment regimen not only during the treatment period but twenty-four hours a day and for a period of perhaps many months or years.

REFERENCES

1. Wright, Jessie: Lecture on "Medical Care of the Respirator Patient," Physician's Course in the Treatment of Poliomyelitis, Stanford University, July 14, 1947.
2. Legg, Arthur T.: Physical Therapy in Infantile Paralysis. Principles and Practice of Physical Therapy, W. F. Prior Co., Inc., Vol. II, Chapter 8, p. 76.

THE PHYSICAL THERAPY REVIEW—Change in Price

Effective November 1, 1948, the price of a year's subscription to THE PHYSICAL THERAPY REVIEW will be raised to $6.00 in the United States; $6.75 outside the United States. All subscriptions for the period beginning November 1, 1948, whether new or renewal, must be paid for at the new rate. Single copies are now 75¢. Send your subscription to THE PHYSICAL THERAPY REVIEW, 4741 North Paulina Street, Chicago 40, Ill. Changes in address also should be sent to this office.

The Orthopedic Surgeon and Co-Workers

In the Treatment of Poliomyelitis

C. L. Lowman, M.D.

From an ideal point of view, the treatment of the acute and convalescent stages of poliomyelitis requires teamwork among all the professional workers into whose hands the care of its victims is entrusted. Fortunately the day has passed when the orthopedic surgeon was considered merely a master of straps and buckles and plaster of Paris casts. The lecturer on poliomyelitis who used to divide his subjects into stages and say, "Now we come to the stage of deformity," has passed into history along with his teaching that "No physical therapy procedures should start until muscle soreness is over."

Now, when an older patient comes to us with residuals such as dangle leg, spinal curvature, tilted pelvis, severe gluteus medius limp, and foot and leg deformities, we recognize that he has had poor medical care, little follow-up, or even no treatment at all. The clinician responsible for him in childhood apparently did not analyze the various physical findings and lacked vision regarding future physical, social, educational and vocational possibilities. If the boy comes to us from a fairly large city, we are safe in assuming that the clinician did not have, or failed to use, the help and service of his colleagues. In other words, teamwork was missing. We should, however, not be too quick to condemn or criticize. General practitioners throughout the country are carrying a tremendous load. They do their best even when their knowledge of, and early teaching about, poliomyelitis is scant.

Among the National Foundation's greatest educational contributions is the dissemination of information emphasizing the need for teamwork among clinicians. During the acute stage of poliomyelitis, the general practitioner, the pediatrist, the neurologist, the nursing service, the physiatrist, the laboratory worker and the health officer are chiefly involved first in diagnosis and then in treatment. The modern conception of best care includes subacute and convalescent treatment by the orthopedic surgeon, the physiatrist, and their nursing and physical therapy service helpers. Treatment by them continues into the convalescent and postconvalescent phases.

After the quarantine period patients usually are transferred to other hospitals or convalescent centers. There they come directly under the orthopedic surgeon's care and guidance. Since his main effort is toward carrying the patient on into normal, healthful living, he will recognize immediately his need of the help of others. Indeed, he is dependent upon his co-workers.

His colleague, the pediatrist, will advise regarding medical and especially nutritional needs. He will watch for pyelitis, respiratory flare up, heart condition, digestive trouble, and so forth. The patient usually has some pain or muscle spasm, so the nursing and physical therapy packing team continues its ministrations. Just how soon the occupational therapist and the school teacher should come into the picture must be decided by the clinician in charge.

Naturally, each patient's primary needs vary, and certain aspects of treatment may require emphasis. For instance, the routine may have to be interrupted if the clinician in charge receives a report of a temperature and gastro-intestinal upset; then the pediatrist's help is needed. Perhaps the laboratory tests show albumen, and a kidney or bladder disturbance requires the advice of a urologist. If a severely involved patient is left to lie for hours in one position he may develop conditions involving these organs.

Some children, especially those near the adolescent age, are so mentally disturbed or react so badly to the psychic blow sustained that the service of the clinical psychologist or even a psychiatrist may be needed. The social service department's help should be requested to study the home situation and other relationships which might help establish the background to be considered in solving emotional upsets and behavior problems.

An individual whose course of life has been altered suddenly by an upheaval such as an attack

Director of Education and Rehabilitation, Orthopaedic Hospital, Los Angeles 7, Calif.

Read at Warm Springs Foundation 20th Anniversary Clinical Meeting, September 1947.

of poliomyelitis cannot overcome the turmoil in his mental and physical world without the type of guidance which is based upon a knowledge of all his varied needs. *Just as these needs are related within the patient, so must be the relationship among the services called upon to treat him.* Although a hospital may have a competent corps of specialists and technicians an effective team cannot be formed unless efforts are adequately coordinated.

When the patient's nervous and mental state is such that he does not respond or cooperate well, it is unwise to continue with a daily routine of packing and muscle training until a member of the clinical team discovers that something is wrong. Nurses, technicians, or a wide-awake resident will always note variations in the patient's reactions and call them to the clinician's attention. It is quite common practice in a busy hospital to have patients slip into routine follow-up procedures (especially when there is no definite paralysis) and drift away from the clinician's immediate attention. When they are sent to a country convalescent center, or to their own home to be returned to the out-patient department, there is a considerable tendency to let down. If they are seen by a resident who is interested only in the pathological or surgical aspects, details such as postural deviations, advice to parents as to home regime (rest, recreation, specific exercises, etc.) may receive insufficient attention.

Because the hospital bed is needed, an apparently recovered patient with a nearly normal muscle check may be sent home to continue bed rest and return several times weekly to the office or out-patient department for muscle training in the gymnasium or pool. Due to various causes, care and supervision may be lax, and the child become overactive and noncooperative. The clinician in charge may find him later at the clinic with such a return of tension in back, hamstrings or gastrocnemii that he must be returned to the hospital for renewed treatment and closer supervision. Consequently, the social service worker should investigate the home situation, bring the information to the clinician on rounds before such a patient is discharged. The physical therapist, occupational therapist and teacher also should be alert to note changes of importance.

For instance, the physical therapist's observance of some fasciculation may be the clue to discovery of fatigue or increased tension in the muscles. The occupational therapist's notation of a child's irritability may bring out that home orders are not being carried out and that he is not getting enough rest. The home teacher's close scrutiny of the family's general conduct in relation to the patient may lead to giving the social service department valuable information.

In hospitals where formal conferences regarding the patients are not customary or possible, the ancillary workers should make rounds with the house staff, be ready to present important information to, and answer any question of, the clinician in charge. Even in institutions which have a physiatrist who attends grand rounds, it is valuable for physical therapists and occupational therapists to attend, along with residents and internes. Physicians will realize their interest and make comments appropriate to this group. Interest will heighten; understanding of individual cases will increase. Consequently, all co-workers will be happier and more effective than if they are kept in the background and given orders passed down through channels.

It is too much to expect that each orthopedic surgeon should have a specialized knowledge of the work of each department. Yet, to obtain the best all-around results for the patients he should have at least broad knowledge and keen appreciation of the part each member of his team plays. He should encourage all professional workers to share the task of instructing the patient as to the purpose of his treatment. This will help the patient to a degree of self-understanding and will enlist his cooperation in maintaining his determination to get well.

Many patients stand in awe of the physician and hesitate to interrupt him with questions. Too many of us do not encourage patients to talk, yet it is highly desirable to obtain the patient's point of view. The clinician's secretary and his technical workers can, if sufficiently alert, obtain pertinent information from patients and explain to them the physician's orders and methods. These workers spend far more time with the patient than does the physician and, if recognized and encouraged, can play a large part in the general management of the case.

A clinician may not be a particularly brilliant surgeon but may possess humanitarian impulses and vision. These give him a sociological approach along with the understanding that surgery and pathology are not always of greatest import in the life of the patient. His interest will lead him to understand that the psycho-social aspects of the case are often of immediate major importance. With at least some knowledge of the educational-recreational and social phases, he will recognize that all rehabilitational factors should be given the earliest possible consideration when the patient comes under treatment. He will appreciate that the major purpose of complete care of the whole individual is to turn out an independent, self-respecting citizen. Incidentally, the rehabilitated patient who can give a good account of himself reflects credit on the institution

and the persons who have helped him.

If, after several years of the best institutional and technical physical care, the patient still has a serious residual, such as double dangle legs, we as orthopedic surgeons must be certain that we are sending home something more than a paralyzed body. To do this we must develop the mind, character and personality of the patient by including able psychologists, rehabilitation personnel, counselors and educators on our team of co-workers.

Close association with our fellow-workers makes for an increase in our own knowledge and experience. What we learn about the care and management of poliomyelitis patients applies in many respects to our care of other handicapping conditions. The lay public should be made to understand that in giving their dimes to the National Foundation they are incidentally helping many other persons who are afflicted with physical disabilities other than poliomyelitis.

But in order to justify the expenditure of funds donated for the care of poliomyelitis patients, we must live up to our responsibility to the donors whose investment is not simply for physical or somatic reconstruction, but for broad, integrated treatment of the unfortunate victims of this disease. Our team, then, must develop wide vision, make long-range plans, and establish an all-inclusive approach in such planning. This type of program, kept operative until all physical and mental salvage is accomplished, will form the social and spiritual capstone of our work.

Women's Medical Specialist Corps

Emma E. Vogel, Colonel

I wish to bring to your attention the role of physical therapists in the Medical Department of the Army, with particular reference to the opportunities for service in the Women's Medical Specialist Corps Section of the Officers' Reserve Corps.

The concept of the Medical Department's mission is three-fold: (1) the care of the sick and injured, (2) maintenance of health of the soldier through the prevention of disease, and (3) preparation for an emergency. The physical therapist, along with other female officers of the Medical Department, has long played a most important part in this first phase. Now, however, she must, as an officer, assume her full responsibility in the planning phase of mobilization requirements.

As you know, Public Law 36, 80th Congress, signed by the President on the 16th of April 1947, established in the Medical Department of the Army a Women's Medical Specialist Corps to consist of dietitian, physical therapist, and occupational therapist sections, and for the first time in the history of the United States, these officers were accorded a full military status, the same as other officers of the Army. The term "officer" no longer applies only to the male members of the Army but is used inclusively for all commissioned members of the military service.

As you will recall, after the Declaration of World War II, the American Red Cross attempted to effect a mobilization of physical therapists for service with the Armed Forces. Due to the fact that a group of scarce category professional individuals was involved, and due to the duplication of effort, this system of listing available personnel was not satisfactory. Now the Medical Department has the authority and the means of mobilizing physical therapists by membership in the Women's Medical Specialist Corps Section of the Officers' Reserve Corps.

In addition to establishing a full military status for all officers in the Women's Medical Specialist Corps, Public Law 36 also authorized the establishment of a Women's Medical Specialist Corps Section of the Officers' Reserve Corps. The Organized Reserve Corps of the Army today consists of the Organized Reserves, the Enlisted Reserves, and

Chief, Women's Medical Specialist Corps, Office of The Surgeon General, Washington, D. C.

Presented at the Annual Conference of the American Physical Therapy Association in Chicago, Illinois, May 23-28, 1948.

the Officers' Reserve Corps. It is the opportunity for service in this latter corps which I am bringing to your attention.

It is now possible for a physical therapist to be commissioned in the Women's Medical Specialist Corps Section of the Officers' Reserve Corps and to serve either in an active or an inactive status. Initial appointment is made for a period of five years and may be renewed, if the officer's service has been satisfactory. Following acceptance of a commission in the Officers' Reserve Corps, there are several avenues to be considered. First, the individual may wish to continue on with her civilian employment but retain membership in the Officers' Reserve Corps in an inactive status. During this phase of inactive status, it is anticipated that officers may have the opportunity of keeping their commissions up-to-date by active participation in some form of training program and extension courses. Participation in these activities while in an inactive status will not only enable the physical therapist to keep her commission active, but at the same time will improve her opportunities for advancement.

The second avenue of service available to an officer in the Officers' Reserve Corps is that of active duty for short periods of time. If funds are available, there may be an opportunity for active participation in a refresher training program which will emphasize the role of physical medicine in military installations.

Thirdly, as a Reserve officer, a physical therapist has the privilege of requesting extended active duty for varying periods of time which in the military service are known as Category I (1 year), Category II (2 years), Category III (3 years). When serving on extended active duty, these officers receive the salary and uniform allowances, and enjoy all the rights and privileges of officers in the Regular Army. Reserve officers who have had former military service and are returned to extended active duty may not receive a second clothing allowance.

After a physical therapist has served satisfactorily as a Reserve officer on extended active duty for a period of time, if she chooses and is otherwise qualified, she may apply for a commission as a physical therapist in the Regular Army. The educational qualifications for original appointment as a physical therapist in the Regular Army as compared with those for appointment in the Officers' Reserve Corps are as follows:

Regular Army—An applicant must be a graduate of an approved college or university with major emphasis in physical education or biological science, and of a training course in physical therapy approved by The Surgeon General.

Reserve Corps—An applicant must have completed not less than 3 years (90 semester hours) in a school or university acceptable to The Surgeon General, with major emphasis on physical education or biological science, and in addition to one of the above, a training course in physical therapy approved by The Surgeon General.

In this connection, it is desired to point out that initial appointment in the Officers' Reserve Corps of a physical therapist who has had no former professional experience will be made in the grade of second lieutenant. However, a physical therapist, who meets the educational requirements as stated above, may be initially appointed in the grade of first lieutenant, *if* she has had three years of professional experience in medical institutions acceptable to The Surgeon General. Such experience is interpreted to include assignment in an approved hospital, or with a recognized crippled children's organization, or similar positions.

Immediately upon acceptance of extended active duty orders, Reserve officers will proceed to Brooke Army Medical Center, Fort Sam Houston, Texas, (travel from officer's home is at Government expense) where they will attend a two-months' Basic Medical Department Female Officer's Course. Here, physical therapists will purchase the necessary uniforms, begin inoculations, and will attend a course designed to orient the individual to military customs, regulations and procedures. General information acquired in this course assists the individual in adjusting to military life. Upon the satisfactory completion of this two-months' course, these officers will be assigned to general hospitals where they will have diversified experience as physical therapists.

Recently, the Department of the Army authorized the resumption of the twelve months' physical therapy training program conducted by the Medical Department for otherwise qualified individuals who are college graduates with major emphasis in physical education. Satisfactory completion of the Basic Medical Department Female Officer's Course is a prerequisite for this course which will consist of a well-integrated program of six months of didactic instruction given at the Brooke Army Medical Center, Fort Sam Houston, Texas, and an applicatory phase of six months in selected general hospitals. The latter phase will be devoted to the actual treatment of patients under supervision and will be supplemented by didactic instruction and review. An individual applying for this training must apply for and accept a commission as a physical therapist in the Women's Medical Specialist Corps Section of the Officers' Reserve Corps and must request extended active duty for not less than two years (Category II). To be qualified for this training, in addition to the edu-

cational requirements, individuals applying for such appointment must be physically qualified, female citizens of the United States, not over 26 years of age, who are in an unmarried status with no dependents under 14 years of age. Individuals selected for this training will be limited to those who have expressed a desire in writing for entering the Regular Army. Selection of applicants will be made on the basis of scholastic attainment, physical fitness and aptitude for the profession of physical therapy and for the military service. Students selected for such training will be called to extended active duty as second lieutenants in the Officers' Reserve Corps, and will receive approximately $200 a month. Government quarters will be furnished while attending this course. Students will be required to purchase and wear the uniform as prescribed for physical therapists in Army Regulations while on duty.

Upon the satisfactory completion of the twelve months' training program, these officers will be assigned as physical therapists in selected general hospitals. During this period of extended active duty, officers will be expected to apply for their commissions in the Regular Army. Should an individual fail to meet the required standards for proficiency at any time during the course, her commission in the Officers' Reserve Corps will be terminated and she will be dropped from the course.

Now that physical therapists are in the Regular Army, certain educational advantages are available. While it has not yet been published, a Career Guidance Program for physical therapists in the Regular Army has been approved. In accordance with this plan, all future physical therapists appointed in the military service will first attend the Basic Medical Department Female Officer's Course at Brooke Army Medical Center. Upon completion thereof, these officers will be assigned to general hospitals where they will obtain additional experience in the administration of all types of physical therapy. Upon the completion of a year's experience in a general hospital, officers will be assigned to station hospitals where they will have experience in the administration of a small physical therapy section and/or when practicable, to a normal tour of duty overseas.

Specialization normally will not begin until after the completion of four years of military experience. An officer's professional experience during this period will progress from general application to highly specialized technics, and, in some instances, to clinical research.

Officers who have demonstrated outstanding administrative ability may be assigned to civilian institutions for graduate training in personnel management and administration. Those who have demonstrated outstanding ability in the Advanced Professional Training Course and in specialized applications may apply for and may be selected for graduate training in civilian institutions in physical therapy and such subjects as anatomy, physiology, neurology, biophysics, kinesiology, and the fundamentals of experimental research.

Recently, the Department of the Army approved a plan by which selected physical therapists who possess degrees in physical education will be permitted to take postgraduate courses at Government expense at the University of Wisconsin and the Baruch Center of Physical Medicine. It also is anticipated that short courses will be available in certain of the specialties.

In this program, it is planned that assignments of all officers, Regular and Reserve, will be made on a rotating and progressive pattern through station and general hospitals in accordance with demonstration of increased ability and acceptance of responsibility.

The Women's Medical Specialist Corps has been in existence only a year. I think you will agree that some progress has been made. This is only the beginning, however. Definite plans are being made to improve the status of physical therapists, for we feel that the profession of physical therapy in the Army has a great deal to offer. Now that it is part of a well-integrated physical medicine program, it is hoped that future contributions to the hospitalization program of the Army will be even greater than in the past.

Rehabilitation

More than ever before, medical rehabilitation is being regarded as an important phase of hospitalization both in the governmental and civilian hospital.

The experience of the Veterans Administration in medical rehabilitation shows economic benefits to both the disabled and the community. Reports of restoration of substantial numbers of disabled to partial or even full productivity, and thus a self-supporting basis, are increasing. In this regard, estimates of ultimate saving of public funds are impressive.

From the point of view of community service, there appears to be considerable merit to the concept of a rehabilitation center in the hospital. It draws those community services which, under the physician as the head of a rehabilitation team, will provide a continuous rehabilitation process to return disabled individuals to their fullest capability and usefulness.

As the personal financial resources of the disabled are often inadequate for care on a private basis, public and tax funds must be available. In this regard the economic problems of rehabilitation in the voluntary hospital are closely related to those of adequate reimbursement from local governments for the patient and outpatient care given to the indigent.

The object of medical rehabilitation is to transfer the patient from the bed to the job. One of the greatest problems involved is motivation—to encourage and convince the disabled person that he can rehabilitate himself. Such motivation can start at the time of the accident or the onset of the crippling disease by allaying fears of the patient and giving courage, understanding and hope predicated on an accurate knowledge of what can be done for him.

It has been demonstrated that well integrated programs of convalescent care which stress activity as an adjunct to definitive treatment will reduce the period of hospitalization, offset the deconditioning phenomenon of rest in bed, and prevent the harmful physiologic and psychologic sequelae which often result through extended hospitalization.

Medical rehabilitation, therefore, can be a valuable community service of every civilian hospital which has the facilities of physical therapy and a medical staff interested in providing this type of patient care.

By way of comparison, 19,000 amputations were performed on servicemen during World War II against 120,000 major amputations among the civilian population.

Two hundred and sixty-five thousand men were permanently disabled in the war, but 1,250,000 civilians were disabled permanently by diseases and accidents in the corresponding four years. It is estimated that 23,000,000 persons in the United States are handicapped to some extent by disease, accidents or maladjustments, or war.

—From the Medical Review Department, edited by Charles T. Dolezal, M.D., of "Hospitals," July 1948.

CHANGE OF ADDRESS

All changes of address must be sent directly to the office of THE PHYSICAL THERAPY REVIEW, 4741 N. Paulina Street, Chicago 40, Illinois, by the 20th of the month prior to the publication date, if the next issue is to be received. Both the old and new address must be given. Since the magazine goes out as second class mail, copies are not forwarded.

SCHOOLS APPROVED FOR TRAINING PHYSICAL THERAPISTS

By Council on Medical Education and Hospitals of the American Medical Association

Name and Location of School	Medical Director	Technical Director	Entrance Requirements*	Length in Months	Classes Start	Tuition	Certificate, Degree, Dip'oma
CALIFORNIA							
Children's Hospital, Los Angeles	Samuel S. Mathews	Sarah S. Rogers	a-b-d	14	Sept	$300	Cert. or Degree
College of Medical Evangelists, Los Angeles[1]	F. B. Moor	R. Wm. Berdan	a-b-c-d	12	Sept	$225	Cert. or Degree
University of Southern California, Los Angeles	O. L. Huddleston	Charlotte W. Anderson	a-b-d[2]	12	Sept	$496	Cert. or Degree
University of California Medical School, San Francisco[1]	Frances Baker	Margery Wagner	d-e	12	Sept	$220[4]	Cert. or Degree
Stanford University, Stanford[3] (Palo Alto)	Wm. Northway	Lucille Daniels	a-b-d[2]	12	Jan June	$523.30	Cert. or Degree
COLORADO							
University of Colorado Medical Center, Denver	Harold Dinken	Mary Lawrence	a-b-d	12	Jan	$300	Cert. or Degree
ILLINOIS							
Northwestern University Medical School, Chicago	John S. Coulter	Gertrude Beard	a-b-d	12	Oct	$400	Cert.
IOWA							
State University of Iowa Medical School, Iowa City	W. D. Paul	Olive C. Farr	e	12	Sept	$299	Cert.
KANSAS							
University of Kansas School of Medicine, Kansas City	Donald L. Rose	Lilyan G. Warner & Ruth Monteith	a-b-c[2]	12	Feb Sept	$80[4]	Cert. or Degree
MASSACHUSETTS							
Boston-Boston School of Physical Education, Boston	Howard Moore	Constance K. Greene	H.S.	36	Sept	$500 yr.	Degree
Simmons College, Boston	Wm. T. Green / Arthur L. Watkins	Janet B. Merrill	a-b-d	16-36	Sept	$550	Cert. or Degree
Boston University College of Physical Education for Women: Sargent College, Cambridge 38	Kenneth Christophe	Adelaide McGarrett	H.S.	36	Sept	$435 yr.	Cert. or Degree
MINNESOTA							
University of Minnesota, Minneapolis[1]	Miland E. Knapp	Ruby M. Green	H.S.	36	Oct	$530[1]	Degree
Mayo Clinic, Rochester	Frank H. Krusen	Helen Belknap	a-b-c	12	Jan July	None	Cert.
MISSOURI							
Barnes Hospital, St. Louis	F. H. Ewerhardt	Beatrice F. Schulz	a-b-d	12	Sept	$200	Cert.
St. Louis University School of Nursing, St. Louis[1]	Alexander J. Kotkis	Sr. Mary Imelda	H.S.	36	Jan Sept	$300	Degree
NEW YORK							
Albany Hospital, Albany	John W. Ghormley	Catherine Graham	a-b-c	12	Sept	$200	Cert.
Columbia University, New York City[1]	Wm. B. Snow	Josephine L. Rathbone	a-b-c	1 or 2 yrs	Sept	$450 yr.	Cert. or Degree
New York University School of Education, New York City[1]	George G. Deaver	Elizabeth C. Addoms	a-b-d	12	Sept	$525	Cert. or Degree
NORTH CAROLINA							
Duke University School of Medicine, Durham[1]	Lenox Baker	Helen Kaiser	a-b-d	15	Oct	$300	Cert.
PENNSYLVANIA							
R. T. Watson School of Physical Therapy, Leetsdale[1]	Jessie Wright	Kathryn Kelley	a-b-d	12	Oct	$300	Diploma
Graduate Hospital, University of Pennsylvania, Philadelphia[1]	George M. Piersol	Dorothy Baethke	a-b-e	12	Sept	$300	Cert.
TEXAS							
University of Texas School of Medicine, Galveston	G. W. N. Eggers	Ruby Decker	a-b-d	12	Jan	$143[4]	Cert.
VIRGINIA							
Baruch Center of Physical Medicine of the Medical College of Virginia, Richmond[1]	Walter J. Lee	Susanne Hirt	a-b-c[2]	12	Sept	$262[4]	Cert. or Degree
WISCONSIN							
University of Wisconsin Medical School, Madison[1]	Harry D. Bouman	Margaret Kohli	a-b-c[2]	12	Sept	$120[4]	Cert. or Degree

*Courses are so arranged that any of the entrance requirements will qualify students for training. a = Graduation from accredited school of nursing; b = Graduation from accredited school of physical education; c = Two years of college with science courses; d = Three years of college with science courses; e = Four years of college; H.S. = High School graduation.
[1]Male students are admitted.
[2]High school graduates accepted for a four-year course leading to A.B. degree.
[3]High school graduates accepted for four-year college course.
[4]Nonresidents charged additional fee.
[5]Certificate granted by Children's Hospital Society; degree granted by University of California at Los Angeles.

Editorials and News

The value of physical therapy in the restoration of the patient to a socially useful life is no longer debatable. The gradual development of the profession during the 1920s and 30s was speeded up tremendously under the impact of World War II casualties. We as a nation recognized our responsibility to correct as far as possible the injuries these men and women had suffered, and the part physical therapy played in the job received dramatic focus. To these must be added the casualties of civilian life.

With this in mind, let us reminisce a bit.

Two years ago we were emerging from the maelstrom of that World War. Many of us as individuals had experienced disruption in our lives and used to dwell longingly on thoughts of settling down into a peaceful routine of existence. Unfortunately, such action has rarely been possible for it is not a peaceful world in which we live. New ideas, new procedures, expansion of programs require us to be constantly alert to change.

Again, two years ago, the American Physical Therapy Association had experienced a dramatic growth which doubled its membership in a very short period of time. With such a growth and the establishment of our national office we were indeed becoming known and respected in the family of professional organizations.

All this is most laudable, but the job is far from finished—in fact, only the foundation is laid. It is true that enrollment in approved schools has increased and the membership of our Association doubled—*but* we still cannot meet the need for qualified physical therapists. It is up to the individual member, each and every one, to renounce the peaceful rut, and to get out and work to meet this demand for physical therapists which will help enlarge the scope of physical therapy service to the physician and patient while strengthening and expanding the activities of the American Physical Therapy Association.

There is always a tendency to "let Joe do it" and we as physical therapists are no exception. We say "let national do it." The national office staff is performing Herculean feats, but there is no known way in which the efforts of two or a half dozen can equal that of 4,000.

The specific means of achieving our objectives are so numerous as to be bewildering. Many will continue to be utilized as a matter of course, but let us take another period of two years and see how many persons we can individually contact, interest and assist in becoming physical therapists.

Again—the demand for qualified therapists far exceeds the supply. This is a critical situation for if we cannot fill the positions, other personnel will have to assume our duties. Each member of the American Physical Therapy Association should accept this for the challenge it is. Allied organizations with larger budgets have embarked upon impressive recruiting campaigns. We cannot afford such action but we can increase individual and chapter activity in connection with vocational counselling.

The ever increasing impetus resulting from lay and medical acceptance of the physical, psychological and financial benefits of rehabilitation place us squarely on the threshold of "opportunities unlimited." Whether or not we can accept this knock of opportunity depends upon our ability to fill the positions which already far exceed the number of qualified candidates.

(1) We have sold our profession as a service.
(2) We must now sell it as a career.
(3) The project is YOURS.

LOIS P. RANSOM

Epidemic Aid Unit Called to North Carolina

At the request of state health and medical officers, The National Foundation for Infantile Paralysis sent the D. T. Watson Epidemic Aid Unit to North Carolina, July 22, 1948. Accompanying Dr. Jessie Wright, director of the team, were Catherine Fletcher, orthopedic nurse, and Miriam Jacobs, physical therapist. Mary Haskell, representing the American Physical Therapy Association, and Lucy Blair of the Joint Orthopedic Nursing Advisory Service traveled with the Unit, observing epidemic situations, best ways of using personnel, and needs in future training of nurses and physical therapists for epidemic work. They also helped in demonstrations.

The Epidemic Aid Unit visited eight cities. The first two days were spent at Raleigh making rounds, having conferences on diagnosis and treatment for physicians, and demonstrations for nurses and physical therapists. A similar two-day program was followed at Willmington and Ashville.

One day was spent, with a program similar to the one previously mentioned, at Morganton, Winston-Salem, Greensboro, Charlotte, and Camp Sutton.

The Unit flew home on August 7.

American Physical Therapy Association Officers and Directors—1948-50

Lois Ransom
President

Marguerite Irvine
Vice-President

Mary Haskell
Secretary

Margaret Kohli
Treasurer

Catherine Worthingham
Director

Dorothy Baethke
Director

Susan G. Roen
Director

Samuel Henshaw
Director

Mary C. Singleton
Speaker, House of Delegates

First International Poliomyelitis Conference

The First International Poliomyelitis Conference was held in New York City at the Waldorf Astoria Hotel from July 12 to 17, 1948. Some of the world's most noted medical and scientific authorities on poliomyelitis were present for this meeting. It was sponsored by the National Foundation for Infantile Paralysis which is celebrating the tenth anniversary of its founding.

Total registration was approximately 1,800, including official delegates from thirty-eight foreign countries.

The purpose of the conference was to coordinate and evaluate information on poliomyelitis which has been gathered during the past ten years.

At the opening session the delegates were welcomed by Mr. Basil O'Connor, president of the National Foundation for Infantile Paralysis. Official delegates were introduced by Dr. Morris Fishbein. Dr. Hart Van Riper was General Chairman of the conference.

Each of the plenary sessions had a presiding officer, speakers, a moderator and panel. The panel for each session was composed of a group of professional authorities on the phase of the disease which was being discussed and led in answering questions from the floor. Delegates who did not understand English were able to hear simultaneous interpretations in either French or Spanish through an IBM receiver.

The speakers and the subjects of their papers were:

Dr. Albert B. Sabin, Professor of Research Pediatrics, University of Cincinnati, Cincinnati, Ohio—"Epidemiological Patterns of Poliomyelitis in Different Parts of the World."

Dr. Herbert J. Seddon, Professor of Orthopedic Surgery, University of Oxford, Oxford, England—"Economic Aspects of Management of Poliomyelitis."

At the session on the early stage of poliomyelitis, Dr. Irvine McQuarrie, Professor and Head, Department of Pediatrics, University of Minnesota, Minneapolis, Minnesota—"The Evolution of Signs and Symptoms"; Dr. David Bodian, Associate Professor of Epidemiology, The Johns Hopkins University, Baltimore, Maryland—"The Pathological Anatomy," and Dr. Fritz Buchtal, Director, Institute of Neurophysiology, University of Copenhagen, Copenhagen, Denmark—"The Pathological Physiology."

Dr. John A. Anderson, Professor and Head, Department of Pediatrics, University of Utah, Salt Lake City, Utah, discussed "Diagnosis and Treatment" in the management of the disease during the early stage.

Three speakers discussed the convalescent stage of poliomyelitis—Dr. E. T. Bell, Professor and Head, Department of Pathology, University of Minnesota—"The Pathology"; Dr. Arthur L. Watkins, Chief of Physical Medicine, Massachusetts General Hospital, Boston, Massachusetts—"Progressive Disabilities," and Dr. Ralph K. Ghormley, Consultant on Orthopedic Surgery at Mayo Clinic, Rochester, Minnesota—"Progressive Deformities."

Dr. William T. Green and Dr. Joseph S. Barr, both Clinical Professors of Orthopedic Surgery at Harvard University, Boston, Massachusetts, presented papers on management of the disease. Doctor Green's paper was on the convalescent stage and Doctor Barr's on the late stage.

Three authorities who were speakers for the session on bulbar poliomyelitis were Dr. Karl T. Neubuerger, Professor of Pathology, University of Colorado, Denver, Colorado—"The Pathology"; Dr. A. B. Baker, Professor of Neurology, University of Minnesota—"Neurologic Signs in Bulbar Poliomyelitis," and Dr. James L. Wilson, Professor of Pediatrics and Communicable Diseases, University of Michigan, Ann Arbor, Michigan, on the outline of essential treatment.

Presenting papers on immunology and chemotherapy in the disease were Dr. Isabel M. Morgan, Assistant Professor of Epidemiology at the Johns Hopkins University—"Mechanisms of Immunity in Poliomyelitis"; Dr. John R. Paul, Professor of Preventive Medicine, Yale University, New Haven, Connecticut—"Immunologic and Other Types of Poliomyelitis Viruses," and Dr. Raymond N. Bieter, Professor of Pharmacology, University of Minnesota—"Experimental Chemotherapy."

There were three speakers at the session on public health aspects of epidemic poliomyelitis. They were Dr. Joseph G. Molner, Deputy Commissioner of Health in Detroit, Michigan—"Public Health Measures"; Dr. Claude W. Munger, Director, St. Luke's Hospital, New York City—"Hospitalization," and Elizabeth P. Rice, Director of Social Service, Grace-New Haven Community Hospital, New Haven, Connecticut—"The Families of Children with Poliomyelitis."

At the closing session, each of the official delegates from abroad presented a summary of poliomyelitis problems in his country.

There were more than forty medical and scientific exhibits. These exhibits were prepared by top scientists in virology, bacteriology, pathology and orthopedic surgery who have been conducting research for the National Foundation for Infantile Paralysis. They represented the results of a wide

and diversified attack on the problem of poliomyelitis research. Leaflets describing briefly the purpose and scope of each exhibit were available in English, French and Spanish.

Clinical demonstrations, using actual poliomyelitis patients, were given each morning and afternoon, following the course of treatment from the acute stage through rehabilitation. Several physical therapists took part in this section of the program. (See "Personals," below.)

In addition, films of general interest on various phases of the disease were shown each afternoon.

The conference was efficiently managed and afforded a unique opportunity for learning more about poliomyelitis. Everyone who was in any degree responsible should be highly commended for its success. News coverage was excellent and widespread, which meant much valuable publicity for one of our major health problems.

Proceedings of the conference will be published in a volume which may be secured from the National Foundation for Infantile Paralysis. Announcement of the publication will be made as soon as it is available.

Personals

Mildred Elson, Lois Olmstead and Catherine Worthingham were members of the Demonstrations Committee for the First International Poliomyelitis Conference which was held in New York City, July 12 to 17, 1948.

Physical therapists who took part in the demonstrations were Kathryn Kelley, Pittsburgh, Pa., Alice Lou Plastridge, Warm Springs, Georgia, Susan G. Roen, Los Angeles, Calif., Lucille Daniels, Stanford, Calif., Marian Williams, Stanford, Calif., Janet Merrill, Boston, Mass., Louise Reinecke, Chicago, Ill.; Terese Anastasia, New York, N. Y., Blanche Talmud, New York, N. Y., and Dante A. Torres, New York, N. Y.

Jessie L. Stevenson, since 1939 National Organization for Public Health Nurses orthopedic nursing consultant on the Joint Orthopedic Nursing Advisory Service, joined the faculty of Vanderbilt University School of Nursing in September. She was appointed associate professor of nursing and was assigned specifically to develop a demonstration orthopedic nursing project, which will be part of the nurse training programs in maternal and child care, now being expanded by the school in cooperation with the U. S. Children's Bureau and the Tennessee State Department of Public Health. In accepting the appointment, Miss Stevenson stated that ". . . the project provides an opportunity for me to teach in a service situation and it also provides an opportunity for me to work with the faculty and others in the community and the state in actually trying out some of the suggestions which the staff in the Joint Orthopedic Nursing Advisory Service have made to institutions and service agencies."

Louise M. Suchomel, a member of the JONAS staff since October 1, 1945, will succeed Miss Stevenson. Before assuming her present position, Miss Suchomel was supervisor of orthopedic nursing with the Detroit VNA and part-time instructor in orthopedic nursing at Wayne University, Detroit.

Edward O'Donnell recently went to Europe to attend the Olympics and to visit hospitals in England and France.

Correction

The authors of the article entitled "Physical Therapy in the Psychiatric Field," which appeared in the March-April 1948 issue of the REVIEW were Helen Kaiser and Virginia Whitfield of the Duke University School of Medicine, Division of Physical Therapy.

New Members

The following are newly accepted members of the American Physical Therapy Association:

Buhl, Mrs. Olga A., 540 S. Lyman Ave., Oak Park, Ill.
Pepe, Lucia, 160 Bennington St., East Boston, Mass.
Powers, Frank Edmonds, 712 N. Wilson Ave., Pasadena 6, Calif.
Prystay, Oksana, 33 Ackley Rd., Box 1222, Greenville, S. C.
Sheehan, Marilyn E., The Beacon Club, Hyannis, Mass.
Talmud, Blanche, 161 W. 16th St., New York 11, N. Y.
Watson, Grace M., 2507 Eastlake, Seattle 2, Wash.
White, Anne, 7921 Second St., Box 22, Stanton, Calif.

Recent Graduates of Stanford University, Calif.:

Brigham, Jane G.	Landis, Jean
Decker, Constance J.	Lohans, Walter H.
Eklund, Esther M.	Peterson, Audrey Mae
Ewan, Norma Jean	Smith, C. Anne
Grover, Frances S.	Waite, Elizabeth M.

Recent Graduates of University of Kansas, Kansas City, Kans.:

Ewing, Barbara Jeanne	Morphy, Anna Lou
Herrick, Ethel Jane	Parker, Mary E.
Johnson, Barbara G.	Stevenson, Ann W.
Levickas, Joan G.	Thomas, John James

Recent Graduates of Bouve-Boston School of Physical Education, Boston, Mass.:

Froberg, Marion L.	Hemenway, Mary
Griffith, Gillian F.	Massarella, Lucia A.
Green, Madge A.	Walker, Jane S.

Recent Graduates of Graduate Hospital, University of Pennsylvania, Philadelphia:

Bartholomew, Daniel R.	Seitchek, Dolores Alicia
Collins, John P.	Stoltz, Carmen Estelle
Nickum, Nancy R.	

Recent Graduates of Boston University, College of Physical Education for Women, Sargent, Cambridge, Mass.:

Anderson, M. Patricia
Baell, Betty R.
Berquist, Esther Vida
Creteau, Marjorie M.
Barbour, Jane Margaret
Brown, Margaret Elizabeth
Coopersmith, Adele D.
Delery, Alice E.
Haslam, Diana
Hathaway, Caroline
Hendry, Mildred Peck
Hogan, Jacquelyn
Hopson, Norma J.
Jones, Priscilla J.
Kidder, Marilyn
Klemens, Helen
Lutz, Christine
Muller, Elberta E.
Patterson, Marjorie
Seccombe, Jane
Smith, Marjorie L.
Townsley, Maybelle N.
White, Joyce Carleton
Wright, Joan M.

Recent Graduates of Mayo Clinic, Rochester, Minn.:

Barlow, George P., Jr.
Hashiba, Esther K.
Schwartz, Esther A.
Smyth, Mrs. Juliet B.

Recent Graduates of Albany Hospital, Albany, N. Y.:

Feeley, Jacqueline W.
Filipsin, Ella
Johnson, Mrs. Mary W.
Pevere, Mrs. Lydia N.
Rousa, Gloria J.
Rumsey, Mrs. Winifred L.

Recent Graduates of Columbia University, New York City:

Jameson, Gladys L.
McLaughlin, Dorothy L.
Seligman, Alice

Recent Graduates of Graduate Hospital, University of Pennsylvania, Philadelphia:

Burkholder, Nellie R.
Desch, Olive M.
Hildebrand, Madeline L.
Keen, Grace C.
Kupiec, Jean A.

Recent Graduates of the Baruch Center of Physical Med., Med. College of Virginia, Richmond, Va.:

DeGrinder, William F.

Associate Members:

Burd, Dr. Joseph, 1205 Benny Dillon Blvd., Nashville, Tenn.
Welles, Carlotta, Los Angeles General Hosp., Box 361, Los Angeles 33, Calif.

Doctor Deaver Receives Award

Dr. George G. Deaver, Professor of Clinical Rehabilitation and Physical Medicine at New York University College of Medicine and a member of the medical staff of the Institute of Rehabilitation and Physical Medicine of the New York University-Bellevue Medical Center, has been awarded the Medal for Merit by President Harry S. Truman for "his pioneer work in the field of rehabilitation".

The full citation given to Doctor Deaver, who served as national consultant in rehabilitation and physical medicine to the Army, Army Air Forces and the Veterans Administration, read as follows:

"Citation to accompany the award of the Medal for Merit to Dr. George G. Deaver. For exceptionally meritorius conduct in the performance of outstanding services to the United States during the period of the recent war. Doctor Deaver, a pioneer and researcher in the field of rehabilitation, undertook a training program for the Army Air Forces in October 1943, giving unstintingly of his time in teaching his technics of restoration and rehabilitation. He served as Consultant to The Air Surgeon, as well as consulting with the Army, Navy and Veterans Administration in the field of rehabilitation, and aided them not only with individual patients, but also in setting policy for their over-all programs. As a result of these contributions, many lives were saved, suffering was diminished and countless men were returned to duty or productive places in civilian life. (Signed) Harry S. Truman."

Baruch Committee Achieves Its Major Objectives

Stating that powerful physical forces which may threaten civilization are being diverted into channels which may lead to a better life, the Baruch Committee on Physical Medicine in its annual report issued recently declared that the atomic "age of physics" has released physical agents of enormous power and vast magnitude which "will in the future relieve the suffering of untold millions of sick and disabled persons and will aid in their prompt restoration to happy and productive citizenship."

Founded in 1944 by Mr. Bernard M. Baruch, elder statesman and philanthropist, in memory of his father, Dr. Simon Baruch, pioneer in physical medicine and leading American exponent of hydrotherapy, the Baruch Committee has in less than five years, according to its director, Dr. Frank H. Krusen, achieved its major objectives of: (1) Increasing the number of physicians trained to teach and use physical medicine; (2) Providing for more extensive basic and clinical research in physical medicine; and (3) Insuring the proper use of physical medicine in relation to wartime rehabilitation and peace time physical preparedness.

Although the full effect of the research and training of physicians will not be felt for some time, there have been immediate effects in the rehabilitation and medical care of thousands of disabled veterans and even more disabled civilians.

As compared with but a few limited facilities in physical medicine and medical rehabilitation, primarily in large medical centers, prior to the war, there are now, according to the report, approximately 150 communities in the nation which have or are planning civilian rehabilitation programs. Among these are the Rehabilitation Center of San Francisco, California; the Woodrow Wilson Rehabilitation Center, operated by the State of Virginia; Philadelphia, Pennsylvania, General Hospital; Bellevue Hospital, New York City; Baruch Center of Physical Medicine of the Medical College of Virginia, Richmond; and the Institute of Rehabilitation and Physical Medicine, New York University-Bellevue Medical Center, New York City.

The effect of the committee's efforts on increasing opportunities for training physicians and other

personnel in physical medicine is shown by the fact that when the committee was organized there were only five approved residencies or fellowships in physical medicine available annually in three medical centers as compared with 70 such residencies and fellowships now annually available at 34 medical centers. Compared to 30 medical schools then offering instruction in physical medicine, there are now 60, just double the original number.

Of the original allocation of a million and a quarter dollars, sums totaling $900,000 were given to Columbia University, New York University, and the Medical College of Virginia to establish three centers for physical medicine and rehabilitation. The three centers, which are being developed over a 10 year period, are designed to serve as models for medical schools and hospitals both in this country and abroad.

Each year the Committee has also sponsored special scientific exhibits at the meetings of the American Medical Association and other medical groups presenting both technical, experimental and clinical research in physical medicine and "real life" demonstrations of methods of rehabilitating arthritis, paralytics, amputees and victims of poliomyelitis and cerebral palsy.

In receiving the report from Dr. Ray Lyman Wilbur, Chancellor of Stanford, who is Chairman of the Committee's Administrative Board, Mr. Baruch stated, "This is a matter to which I have given a great deal of thought and which, I think, has already done a tremendous amount of good in alleviating the sufferings of our fellow men, particularly the veterans, and I think it will do still more. There is nothing with which I have been connected that has given me as great satisfaction."

Army Hospital Beds for Veterans

A total of 3,035 beds in Army hospitals throughout the United States have been allocated for treatment of veterans, Major General Raymond W. Bliss, Surgeon General of the Army, announced recently. The allocations were made at the request of the Veterans Administration.

Beds allotted for veterans may be used partly for treatment of chronic disabilities, with 325 set aside specifically for tuberculosis cases at Fitzsimons General Hospital in Denver. None of the beds allocated will be used for patients who could be treated in domiciles.

Women's Medical Specialist Corps

The Surgeon General of the Army announces that appointments in the Women's Medical Specialist Corps, Regular Army, are now authorized for qualified individuals *with* or *without* prior military service.

Applicants must be under 28 years of age at the time of appointment, physically qualified for general duty, and must be in an unmarried status with no dependent children under 14 years of age. Individuals interested in Regular Army commissions must first be commissioned in the Reserve Corps and serve on extended active duty for at least six months immediately prior to making application for appointment in the Regular Army.

The Regular Army offers the young physical therapist unusual opportunities, both professional and personal. In accordance with the Army career planning program consideration is given to the professional development of each individual officer according to her capabilities and potentialities. This is accomplished by rotation of assignment to provide varied experience, and by opportunities for further study.

Information as to the procedure in making application for a Reserve Commission and for requesting extended active duty may be obtained by writing to The Office of The Surgeon General, Department of The Army, Washington 25, D. C., Attention: Chief, Physical Therapist Section.

• The Surgeon General of the Army announces the recent promotion to the grade of major the following seven physical therapists:

Name	*Present Address*
Elsie Kuraner	Army & Navy Gen. Hosp. Hot Springs, Ark.
Edna Lura	Office of The Surgeon General, Washington 25, D. C.
Harriet S. Lee	Office of The Surgeon General, Washington 25, D. C.
Felie Clark	Office of The Surgeon Headquarters 8th Army, Japan
Brunetta Kuehlthau	Oliver Gen. Hosp., Augusta, Ga.
Ethel Theilman	Med. Field Service School, Brooke Army Med. Center, Ft. Sam Houston, Tex.
Agnes P. Snyder	Office of The Surgeon General, Washington 25, D. C.

This is the first group selected for such promotion since the organization of the Women's Medical Specialist Corps.

Coming Meetings

Date	*Organization*	*Place*
Nov. 8-12	American Public Health Association	Boston, Mass.
Nov. 15-17	National Society for Crippled Children and Adults	La Salle Hotel, Chicago, Ill.

Summary of the Minutes of the Annual Session of the House of Delegates of the American Physical Therapy Association

First Meeting—Monday, May 24, 1948. 9:00 A.M.—12:00 Noon.

Following presentation of credentials by delegates, the 1948 General Session of the House of Delegates of the American Physical Therapy Association convened at twenty minutes past nine o'clock in the Illinois Room of the La Salle Hotel, Chicago, Illinois, with Miss Mary C. Singleton presiding as the chairman.

The chairman called the meeting to order and the Secretary, Helen Anderson, called the roll.

On roll call delegates were present from all except the following chapters: Maine, Maryland, New Jersey, Puerto Rico and Santa Barbara. Charlotte Anderson, First Vice-President, also was absent.

Louise Hayward, Eastern New York, moved that the minutes of the session be referred to a committee, appointed by the chair, for approval, editing and printing.

This motion was seconded and unanimously carried. The chair appointed Mary Haskell, Helen Anderson and Catherine Graham to this committee.

Dorothy Dean, Program Chairman, presented the prepared program sheet as her report. The motion of Miriam Rodenberger, Eastern Missouri, that the House accept this report was duly seconded and unanimously carried.

The report of the Nominations Committee was read by *Captain Harriet Lee,* Chairman. The chair then called for further nominations from the floor. In the absence of any further nominations the chair declared the nominations closed and announced that elections would be held on Thursday morning at the last meeting of the House of Delegates. Annual reports were then presented and accepted in the following order:

A. Officers
   President—Miss Roen
   Secretary—Miss Ransom
   Treasurer—Mr. Campbell

B. Committee Chairmen
   Legislation—Miss Haskell
   Education—Miss Baethke
   Relations—Miss Williams

C. Physical Therapy Review—Miss Reinecke

D. National Office
   Executive Secretary—Miss Elson
   Educational Secretary—Miss White

E. Advisory Member to the Board of Registry
   Miss Stevenson

F. House of Delegates
   Secretary—Miss Anderson

G. Executive Committee
   Secretary—Miss Ransom

Miss Ransom summarized the action taken by the Executive Committee at their meeting prior to the opening of the Conference. They agreed upon changes to be made in the proposed By-Laws. They approved new requirements for membership as presented by the Education Committee.

They approved a Code of Ethics to be presented for adoption by the House of Delegates.

They approved the report of the special committee appointed to draw up Personnel Policies for the national office.

This report included a conception of the scope of service of the national office which listed duties and qualifications of the Executive Secretary as read by *Miss Ransom.*

They accepted the report of the Secretary regarding investigation of an exchange of English and American physical therapists. They authorized the attendance of the Executive Secretary at an international meeting of physical therapists sponsored by the Chartered Society of Physiotherapists in England and visits to other foreign countries.

They approved the By-Laws of the Delaware Chapter which becomes the forty-ninth chapter of our Association.

They elected to associate membership Doctors Byrd and Van Werssowetz of Tennessee and Carlotta Welles, occupational therapist of California.

They selected Boston as the site of the 1949 Conference.

They voted to recommend to the House of Delegates, the use of the initials A.P.T.A. to designate our Association.

The chair then asked for a motion from the floor in regard to the last suggestion. *Miss Draper* of Kentucky moved that the House of Delegates accept the initials A.P.T.A. as representative of our Association. This was seconded and unanimously carried.

Miss Stevenson then summarized the reports which had been given by bringing into focus the responsibilities of chapters and individual members regarding the attainment of the objects of the Association.

The chairman then presented the representatives from the members at large, elected at the beginning of the session. They were Carol Spensley, delegate, and Joyce Cairns, alternate.

The chair announced that the proposed By-Laws would be on the table until Tuesday night at 7:30 at which time they would be presented for discussion and adoption. She further requested that all proposed amendments be submitted in writing in triplicate at the beginning of the meeting.

Mr. Henshaw, Pennsylvania, requested further clarification of the difficulties encountered in inaugurating an exchange program with English physical therapists.

Miss Ransom replied by enumerating some of these which had been suggested by the Department of State and representatives of the American Association of University Women. She stated that it could only be undertaken if the Association was prepared to assume full responsibility for the administration of this program.

On motion of Miss Masola, Michigan, the meeting adjourned until Tuesday night at 7:30.

Second Meeting—Tuesday, May 25. 7:30 P.M.—11:20 P.M.

Chairman Singleton called the meeting to order and the roll was called by Secretary Anderson. Mr. T. V. McDavitt, legal advisor of the Association, was present and assisted in interpreting sections of the By-Laws as proposed.

Mrs. Wagner, Northern California, moved the adoption of the proposed By-Laws of the American Physical Therapy Association. This motion was duly seconded. The chair announced that if there was no objection the By-Laws would be considered section by section and requested the Chairman of the Legislation Committee to do the reading.

Miss Haskell explained that Articles I and II of these By-Laws are in essence the Constitution of the Association and also make up our articles of incorporation in the state of Illinois. In response to questions regarding the interpretation of "supervision" in Article II it was explained that this is considered to be identical with "direction".

There was considerable discussion regarding Article III, Section 2 (A) Educational Qualifications. Several amendments were proposed, voted on and defeated.

Miss Volland, Massachusetts, moved the following amendment which was seconded and adopted:

"To be eligible for active membership, an individual must possess such educational qualifications and training as is prescribed and published by the Executive Committee."

The next change was in Article III, Section 3 (C).

Miss Houtz, Virginia, moved the following amendment which was adopted. Strike out "(2) by any member of the Executive Committee". This now provides that proposals for associate membership may now be made only by suggestions from the Executive Committees of component chapters.

The next discussion concerned the amendments proposed regarding Article III, Section 6, Dues and Special Assessments.

Miss Stout, Ohio, moved that dues be collected by the chapters and that the provision for special assessments be struck out. This was defeated.

Miss Volland, Massachusetts, moved that the paragraph regarding special assessments be amended to read as follows:

"A special assessment may be levied on all active members by a vote of two-thirds of the members of the House of Delegates at an annual meeting or by ballot cast by mail. Notice of said proposed assessment shall have been mailed to each active member of the Association thirty days prior to the date for action on the proposed assessment."

the rest of the paragraph to stand as proposed. This motion was seconded and carried.

Miss Mezek, Illinois, moved that Article IV be amended to provide for only one delegate from each chapter carrying the total number of votes to which her chapter was entitled. There was discussion of this amendment and the proposal was defeated.

Miss Houtz, Virginia, submitted an amendment to Article VI, Section 2 (B) to eliminate officers and directors as members of the House of Delegates. Following discussion this was defeated.

Miss Rodenberger, Eastern Missouri, moved the following amendment to Article VI, Section 3 "Determination of Number of Delegates to Which Chapter is Entitled—Vote of Absent Delegates".

"If it appears that all delegates to which a component chapter is entitled will not attend an annual session the affected chapter may in the credentials confer on one or more duly elected delegates attending the session, the right to cast the vote or votes of delegate or delegates not attending the session." This motion was seconded and carried.

Miss Volland, Massachusetts, proposed to change the quorum suggested in Article VI, Section 5—Conduct of Business. Her amendment as follows was adopted:

"The House of Delegates in its deliberations shall be presided over by the Speaker of the House, or in his absence by the Vice Speaker. Thirty-five members representing at least two-

fifths of the chapters shall constitute a quorum for the transaction of business."

The rest to read as presented.

The next discussion concerned the composition of the Finance Committee.

An amendment was submitted to provide that the Speaker of the House of Delegates be the third member of this committee. This amendment was defeated.

Miss Cate, Carolina, proposed an amendment to Article X, Section 12 to change the composition of the Nominations Committee. This motion was lost.

At the completion of the reading of the proposed By-Laws the Chairman announced that the By-Laws as a whole were now open to amendment. There being no further amendments, voting was in order on the main motion to adopt the By-Laws as amended. The chair reminded the House of Delegates that this required a two-thirds vote.

On roll call the By-Laws as proposed and amended were unanimously adopted and the meeting adjourned.

Third Meeting—Thursday, May 27, 1948. 9:00 A.M.—12:00 Noon.

The chairman called the meeting to order and the Secretary called the roll. The chair announced a change in the order of business to which there were no objections.

Miss Ransom read the proposed Code of Ethics.

On roll call the House of Delegates voted unanimously to adopt the Code of Ethics as read by *Miss Ransom.*

Miss Schaeffer, Wisconsin, raised a question regarding interpretation of physician's prescription for physical therapy. The chair requested Miss Stevenson to comment on this.

Miss Stevenson commented on ethical approaches to this problem and the relative importance of physicians and physical therapists responsibilities. She further emphasized the necessity for written prescriptions.

Miss Beard, Illinois, added to the discussion by citing a personal experience which highlighted the importance of respecting the discretion of physicians.

The chairman announced the Election of Officers as the next order of business. The Secretary read the list of nominees.

Miss Stout, Ohio, moved that the Secretary be instructed to cast a unanimous ballot for the slate of officers as presented. This was seconded and unanimously passed. The following were elected:

President—Lois Ransom

Vice President—Marguerite Irvine

Secretary—Mary Haskell

Treasurer—Margaret Kohli

Speaker of the House of Delegates—Mary C. Singleton

Delegates for Four Years—Sue Roen, Samuel Henshaw

Delegates for Two Years—Dorothy Baethke, Catherine Worthingham

The chairman announced the election of two members of the Nominations Committee was the next order of business. She repeated the requirements for these positions which according to the By-Laws are active or life membership or a combination thereof for the preceding five years and consent to serve. She announced the Elections Committee as appointed by the Executive Committee, Miss Arrington, Miss Phillips and Miss Saik.

She then declared a ten minute recess to allow for preparation for nominations.

After the recess nominations were made as follows:

Miss Compton, Western Michigan: Catherine Graham.

Miss Mezek, Illinois: Dorothy Wagner.

Miss Schlosser, Georgia: Brunetta Kuelthau.

Miss Meyer, Hawaii: Sarah Johnson.

Miss Houtz, Virginia: Mary Lawrence.

Miss Kolb, Western Pennsylvania: Irene Mezek.

Miss Lang, Texas: Mary Deatherage.

Miss Volland, Massachusetts: Adelaide McGarrett.

Miss Hardy, Oregon: Anna Elliott.

Miss Gate, Carolina: moved that the nominations be closed.

This was seconded and passed. Voting by ballot then took place and the chairman of the Elections Committee announced the following results: Catherine Graham, Eastern New York; Sarah Johnson, Connecticut.

House of Delegates Bulletins

The Chair explained the purpose of the questionnaire sent out in a House of Delegates bulletin. She stated that it was prompted by an interest in learning what chapters were doing and a desire to thereby furnish impetus and stimulation to greater chapter participation.

The Secretary read the summary of the questionnaire and asked for corrections. Delegates from Northern California, District of Columbia, Carolina, Michigan and Tennessee offered corrections.

Miss Killam, Washington, moved that the chairman of the House of Delegates appoint a committee of three to work with the secretary in the national office concerned with placement, to study ways and means for improving placement service on both local and national levels, and to present it to the next annual meeting of the House of Delegates. This motion was seconded and carried.

Miss White, Educational Secretary, requested that this committee meet with her at the close of this meeting and that representatives from other chapters concerned with this problem be present also. The Chairman appointed Mrs. Wagner, Helen Anderson and Miss Masola to this Committee.

Relations

The Chair then called on the Chairman of the Relations Committee to report on discussion at the Relations Committee meeting held on Monday night.

Miss Williams referred to the discussion regarding chapter newsletters. The value of these newsletters is in the opportunity to reach each member of the chapter and to make contact with other chapters through exchange.

Chapter Problems

Miss Schaeffer, Wisconsin, asked what the policy should be for chapters who were unable to locate members.

Miss Elsan—Executive Secretary—agreed that this was a difficult problem and that the chapter's obligation was finished if they had made an effort to locate these members. She suggested, however, that a final report be sent to the national office where further efforts could be made to locate such persons.

1950 Conference

Chairman Singleton then announced that discussion regarding the type of conference to be held in 1950 was in order. She stated that the House of Delegates should make known its choice between city and country.

Miss Volland, Massachusetts, told of plans the Massachusetts Chapter had for 1949.

Miss Stillman, West Virginia, suggested that the Association might like to meet at White Sulphur Springs.

Several delegates spoke in favor of the country type conference and when the roll was called a large majority voted in favor of the country type of conference for 1950.

Public Health Section

Miss Holanetz, Rhode Island, moved that a Public Health Section of the Association be considered by the Executive Committee and the House of Delegates at some future date. This motion was seconded.

Miss Holanetz spoke in favor of this motion by stating that this field is growing and has increasing problems which could be profitably discussed in separate meetings.

On roll call the motion was carried.

The Chair then turned the meeting over to Miss Roen, outgoing president.

Miss Roen, expressed her appreciation for the cooperation and support given during her term of office.

She then introduced the newly elected officers.

Miss Ransom—President—assumed the chair and thanked the House of Delegates for its vote of support.

She then extended a vote of thanks and appreciation to all who had helped to make the conference possible.

Chairman Singleton expressed her thanks to the outgoing officers of the House of Delegates who had contributed so effectively during their term of office.

Miss Worthingham—Director—asked for a specific and very enthusiastic vote of appreciation to the Illinois Chapter for their management of the Conference. The House of Delegates joined unanimously in this vote.

Mrs. Wagner, Northern California, moved that the session adjourn sine die. This was seconded.

The Chairman declared the session adjourned.

Index to Current Literature

Anterior Poliomyelitis

The Present Status of Poliomyelitis. E. L. Kendig, Jr. Southern Med. and Surg., May 1948.

Arthritis and Rheumatism

Acute and Chronic Rheumatic Diseases: The Role of Physiotherapy. L. Schmidt. Physiotherapy. Aug. 1948.

Bone and Joint Injuries and Diseases

Cup Arthroplasty. Stella Y. Saywell. Physiotherapy, Aug. 1948.

Intramedullary Pinning for Arthodesis of the Knee Joint. George Chapchal. J. Bone and J. Surg., July 1948.

Physical Therapy of the Knee Joint in Proximity to Fractures of the Tibia and Femur. Louis N. Rudin. Arch. Phys. Med., Aug. 1948.

Cerebral Palsy

An Evaluation of Certain Non-Operative Methods Used in the Treatment of Cerebral Palsy. Herbert E. Hipps. J. Bone and J. Surg., July 1948.

Exercise

Early Ambulation: Clinical Results and Prerequisites. Karl A.

Meyer, Donald D. Kozell and Nicholas Capos. Minn. Med., Aug. 1948.

Fractures

Treatment of Acute Fractures of the Neck of the Femur. George W. Van Gorder. J.A.M.A., July 31, 1948.

Fracture-Dislocation of the Hip Joint: The Nature of the Traumatic Lesion, Treatment, Late Complications and End Results. Marshall R. Urist. J. Bone and J. Surg., July 1948.

Hydrotherapy

American Spas. Walter S. McClellan. Arch. Phys. Med., Aug. 1948.

Hyperpyrexia

Present Status of Fever Therapy. William Bierman. Arch. Phys. Med., July 1948.

Massage

The Effect of Massage Upon the Denervated Skeletal Muscle of the Dog. A. J. Kosman, Elizabeth C. Wood and S. L. Osborne. Arch. Phys. Med., Aug. 1948.

Miscellaneous

Physical Therapy in a VNA. Mary Macdonald. Public Health Nursing, Aug. 1948.

Orthopedic Problems of Older People. Kathleen Newton. Amer. J. Nurs., Aug. 1948.

Hamstring-Tendon Transplantation for the Relief of Quadriceps Femoris Paralysis in Residual Poliomyelitis: A Follow-up Study of 134 Cases. J. R. Schwartzmann and C. H. Crego, Jr. J. Bone and J. Surg., July 1948.

Advertising in Physical Medicine. Howard A. Carter. Arch. Phys. Med., Aug. 1948.

Nervous and Mental Diseases and Injuries

Multiple Sclerosis, Diagnosis, Therapy and Rehabilitation. John T. Robson. Northwest Med., July 1948.

Physical Medicine for Some Neurologic Conditions. Arthur L. Watkins. Arch. Phys. Med., Aug. 1948.

Transient Hemiplegia Following Electroconvulsive Treatment. Rudolph Kaldeck. Arch. Neurology and Psychiatry, Feb. 1948.

Peripheral Vascular Diseases

Effect of Sympathectomy on Blood Flow in the Human Limb. Irwin D. Stein, Karl Harpuder and Jacob Byer. Amer. J. Physiology, March 1, 1948.

The Effects of Occlusion with Various Pressures on the Blood Flow in the Lower Extremities. Jean C. Terrier, Khalil G. Wakim and Frank H. Krusen. Arch. Phys. Med., July 1948.

Radiation

Progress in the Use of Ultraviolet Radiations. William T. Anderson, Jr. Arch. Phys. Med., July 1948.

Microwave Radiations. S. L. Osborne and Jesse N. Frederick. J.A.M.A., July 17, 1948.

Rehabilitation

A Coordinated Program of Physical Therapy and Occupational Therapy in a General Hospital Physical Rehabilitation Program. Max K. Newman and Harriet Barbara Jewett. Arch. Phys. Med., July 1948.

Physical Reconditioning in Japan. Noel H. Petree. Bull. U. S. Army Med. Dept., July 1948.

Organization of the Rehabilitation Department. John H. C. Colson. Physiotherapy, July 1948.

Abstracts

John S. Coulter, M.D.

Studies of the Pulmonary Circulation at Rest and During Exercise in Normal Individuals and in Patients with Chronic Pulmonary Disease

R. L. Riley, A. Himmelstein, H. L. Motley, H. M. Weiner and A. Cournand. From the Cardio-Pulmonary Laboratory, Chest Service, Bellevue Hospital; and the Department of Medicine, College of Physicians and Surgeons, Columbia University, New York, New York. In THE AMERICAN JOURNAL OF PHYSIOLOGY, 152:2:372, February 1, 1948.

1. Studies of cardiac output and pulmonary arterial pressure were performed using the venous catheter technic in three normal individuals and in eight patients with various types of pulmonary disease. Measurements were made at rest during exercise on a stationary bicycle.

2. Two of the three normal subjects showed a decrease in the mean pressure in the pulmonary artery during exercise; all showed marked drop in pulmonary vascular resistance and a minimal increase in the work of the right ventricle during exercise.

3. Three of the patients with chronic pulmonary disease showed a significant elevation of pulmonary arterial pressure at rest, and in all eight cases the mean pressure increased during exercise. There was either no change or an increase in the pulmonary vascular resistance during exercise, and the work of the right ventricle invariably was higher than in the normal subjects at a corresponding work level.

4. The findings indicate that the expansibility of the pulmonary vascular bed during exercise is limited in patients with chronic pulmonary disease.

5. Anoxia may contribute to the elevation of pulmonary arterial pressure during exercise in those patients whose arterial oxygen saturation falls.

6. The physiological evidence upon which an estimate of disability must be based in patients with chronic pulmonary disease is extended by studies of the pulmonary circulation during exercise.

Electroencephalographic Studies in Poliomyelitis

Alton Goldbloom, M.D., Herbert Jasper, M.D., and Helen Friedman Brickman, M.D., Montreal, Canada. In JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 137:8:690, June 19, 1948.

Summary

Abnormalities in the electroencephalogram were found in a large proportion of patients following poliomyelitis. These changes were much more common in children than in adults. Partial or complete recovery was observed in some patients during a period of five to eight months following the acute illness. In others there was evidence of persistent abnormality in the electroencephalogram for at least five to fifteen years. It is concluded that cerebral involvement in poliomyelitis is much more common as judged by changes in the electroencephalogram than would be apparent from clinical observations alone. The possible significance of these findings in relation to disturbance in mentality or behavior was discussed.

Tolerance Limits to Radiant Heat

D. L. Lloyd-Smith, M.D., B.Sc. (Oxon) and K. Mendelssohn, M.A., D.Phil., F.Inst.P. From the Nuffield Department of Clinical Medicine, Oxford. In BRITISH MEDICAL JOURNAL, 4559:975, May 22, 1948.

The thermo-radiometer used was that described by Evans and Mendelssohn (1945b). It has been designed to measure all the visible and infra-red radiation. At the end of each test exposure the thermo-radiometer was put under the screen aperture in the place occupied by the subject's skin and the radiation flux measured, the lamp and screen being in the same relation as during the test. The radiation flux was recorded in gramme-calories per square centimetre per minute, termed by us, for simplicity, "pyrons" (1 pyron equals 1 gramme-calorie flowing through 1 square centimetre in 1 minute).

Summary

The tolerance limit to local irradiation by visible and infra-red rays has been measured in terms of radiation flux and skin temperature in 40 experimental volunteers.

There is a sharp and well-defined transition from a feeling of heat which is comfortable to a sensation of burning. The skin temperature at which this change of sensation takes place is about 45 degrees C. (113 F.) and the tolerated radiation is of the order of 2.5 gramme-calories per square centimetre per minute. This figure is well above the usual therapeutic intensity, and we suggest that under well-defined conditions considerably higher intensities of radiant heat can be applied clinically than has been customary so far.

Some Enzyme Systems of Denervated Muscle

Ernst Fischer, M.D., Richmond, Va. In ARCHIVES OF PHYSICAL MEDICINE, XXIX:5:291, May 1948.

Hines and co-workers have demonstrated that massage increases the strength of denervated muscles without significantly affecting their weight. Therefore, we included massage in the investigation and found that massage also decreases potassium chloride-extractable protein somewhat in normal and in denervated muscles and that myosin from normal muscle is accordingly diminished, whereas more myosin can be obtained from the diminished extract of the treated denervated muscle. Q extract and Q myosin are increased by massage to about the same extent in normal and in denervated muscle. On the whole, the beneficial effect of massage on the denervated muscle is less pronounced than the effect of electrical treatment.

The Management of Acute Circulatory Failure in an Injured Limb

D. L. Griffiths, Manchester, England. In THE JOURNAL OF BONE AND JOINT SURGERY, 30B:2:280, May 1948.

Sudden arrest of the circulation in a limb is a catastrophe of particular interest to the orthopedic surgeon because, apart from embolism and arterial disease, this emergency is almost confined to the vascular complications of fractures and dislocations. Crushing injuries of a limb and accidents after the use and abuse of tourniquets are rare. The combination of fracture with vascular obstruction is nearly always the result of severe injury, and the dice are loaded against the surgeon who must work upon the badly damaged ischemic limb of a patient with little reserve of strength. Yet, surgical treatment must be prompt and radical, for acute arterial occlusion carries real danger to life as well as to the limb itself.

Postoperative Care

The first few postoperative hours are critical. All necessary measures must be taken to maintain an adequate systemic blood-pressure, for a good head of pressure obviously will help to force blood into an injured limb. Alkalies should be continued and since ischemia of tissues obviously predisposes to infection, penicillin should be given as a routine. The limb should be slung on some "open" form of splintage, controlled but not compressed. It should be elevated just above the level of the heart unless the patient finds greater comfort just below that level. It should be kept cold, though not iced, in the shade before an open window. An electric fan is needed in hot weather. The rest of the body should be heated, even until the temperature rises to 100 or 101 F. An electric blanket is useful.

Working Capacity in Patients with Orthopedic Handicaps from Poliomyelitis: I. Energy Expenditure in Walking at Various Speeds and Grades

E. Simonson and A. Keys. In AMERICAN JOURNAL OF PHYSIOLOGY, 151:239-652, December 1947.

Simonson and Keys compare energy expenditures of 2 poliomyelitis patients, 1 clinically completely recovered from paralysis (E.B.), the other with an almost atrophic right leg (J.D.), to those of 2 normal subjects during walking on a treadmill at different speeds and grades. E.B.'s energy expenditure coincided with the normal values at all variations of speed up to 3.5 miles per hour with a slight tendency to higher values at 4 miles per hour. J.D.'s energy expenditure when walking with braces exceeded the normal values (1.5 to 2.6 times) at all variations investigated (up to 3 miles per hour). Without braces, J.D.'s energy expenditure was considerably higher than it was with braces. The respiratory efficiency of J.D. was definitely lower than that of the other subjects, at all variations. The level of the energy expenditure at a given variation characterizes the degree of handicap of a given patient. The trend of the curves indicates that 4 miles per hour is the limit of tolerance for E.B., and 2.5 miles per hour for J.D. The level of energy expenditure appears to be a good index for the relief obtained by means of braces. It is possible that this method could be used to compare different types of braces.

The Optimal Physical Therapy for Rheumatoid Arthritis

Ernest Stengel, M.D., New York City. From the Hospital for Joint Diseases. In JOURNAL OF MEDICINE NEW YORK STATE, 48:9:1028, May 1, 1948.

1. Proper physical therapy is an important part of the management of rheumatoid arthritis.

2. Ion transfer, using magnesium sulfate, sodium salicylate, histamine, and mecholyl represents the optimal form of physical therapy for the treatment of rheumatoid arthritis.

3. There is a definite contraindication of certain physical therapy procedures of which the sedimentation rate is a valuable indicator.

4. There is a certain order of procedure when administering drugs concurrently with physical therapy.

Control of Acute Respiratory Infections in Industry

G. F. Wilkins. In NEW ENGLAND JOURNAL OF MEDICINE, 238:107-136, January 22, 1948.

The Subcommittee for the Evaluation of Methods to Control Airborne Infections concluded that the general use of ultraviolet irradiation or disinfectant vapors in schools, barracks and in industrial environments is not justified at the present time. In a recent outbreak of influenza, definitely identified as due to virus A, vaccination of 10,000 university students was accomplished. Satisfactory serum antibody levels against virus A were obtained, but no protection was afforded.

Surgery in the Treatment of Rheumatoid Arthritis and Ankylosing Spondylitis

W. Alexander Law, O.B.E., M.D., F.R.C.S. In PROCEEDINGS OF THE ROYAL SOCIETY OF MEDICINE, XLI.:4:251, April 1948.

The pain, deformities and disabilities resulting from rheumatoid arthritis and ankylosing spondylitis must be treated by a team composed of physician, physical medicine expert, orthopedic surgeon, and, in certain cases, deep x-ray therapist working simultaneously.

The principle of "rest" in order to relieve pain has to be combined with methods designed to preserve and restore function. The multiple joint deformities in these cases may necessitate a long program of reconstructive or functional treatment, which entails wholehearted cooperation on the part of the patient in intensive postoperative exercise regime.

Procedures advocated for the upper limb include excision of the acromion process together with the subacromial bursa to allow free movement between the central tendon of the deltoid and the tendinous shoulder cuff; arthodesis of the shoulder in cases where there is more severe joint destruction; in certain cases of elbow-joint arthritis, excision of the radial head and sub-total synovectomy may preserve joint function and avoid or delay the necessity of arthroplasty which can be carried out in two ways (a) similar to the formal joint excision, or (b) re-shaping the lower end of the humerus and upper end of the ulna lining these surfaces with fascia. The former method is preferable in cases of rheumatoid arthritis. To overcome wrist-joint deformity and restore pronation and supination excision of the lower end of the ulna together with radiocarpal fusion in position for optimum function is advocated. Finger and toe joints may be corrected by resection of the bone ends and capsulectomy.

In the lower limbs bilateral involvement of the hipjoint is best treated by vitallium mold arthroplasty which may be carried out in four ways: (1) routine arthroplasty; (2) modified Whitman procedure; (3) modified Colonna operation; and (4) the proximal shaft or intertrochanteric arthroplasty. It is essential in these operations to have knowledge of the operative technic, the use of special hip gouges and reamers, and detailed postoperative supervision.

For dorsal kyphosis of the spine, spinal osteotomy at the lumbar level provides excellent correction but is an operation demanding care and skill in its execution.

The author's remarks are based on experience gained when working with Dr. M. M. Smith-Petersen at the Massachusetts General Hospital, Boston, U. S. A.

Physical Medicine in the Treatment of Fractures

Miland E. Knapp, M.D., Minneapolis, Minnesota. In JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 137:-136, May 8, 1948.

Treatment for these conditions should be started immediately after the fracture is reduced and immobilized. At first the treatment should be directed mainly toward the removal of hemorrhage and edema. This may be accomplished most efficiently by active exercise. Normal venous return flow circulation from the extremities is accomplished through muscle contraction. By careful choice of the immobilizing apparatus, active motion of some portion of the extremity usually is feasible throughout the period of immobilization. Close fitting, nonpadded plaster casts, trimmed so that motion is possible in all joints except those required to maintain the immobilization, usually are satisfatcory in those patients that are ambulatory. Skeletal traction and internal fixation in the more serious cases allow adequate immobilization of the fracture line with minimum immobilization of surrounding joints. Elevation of the affected part is a useful adjunct in removal of swelling. However, it must be remembered that for elevation to be effective, the extremity must be so arranged that there is a continuous downhill slope from the fingers or toes to the body. This means in the upper extremity that the hand must be above the elbow and the elbow above the shoulder. Obviously this is not a practical position unless the patient is in bed. The use of a sling in a Colles fracture, for instance, does not prevent swelling because an uphill grade is still present between the elbow and the shoulder. If adequate activity or elevation or both can be accomplished immdiately after the fracture has been reduced, the problem of removal of swelling usually has been solved and routine care in the department of physical medicine will be reduced to a minimum.

The physiologic effects of massage vary with the type and dosage employed. However, as used in the early treatment of fractures (superficial stroking) the effects are: (1) sedation and relief of pain and muscle spasm; (2) increase of circulation, this time the greatest effect is on the venous side of the circle so that return flow is facilitated both reflexly and mechanically; (3) subsequent decrease of swelling because of the increased venous circulation.

Wherever voluntary active motion may be impractical or impossible, as in nerve injuries, the use of electrical stimulation will help to prevent muscle atrophy and circulatory dysfunction. The faradic current may be used if the nerve is intact, but the interrupted galvanic or sinusoidal current must be used if the nerve is severed and the nerve endings are degenerated.

Active motion of all joints not necessarily immobilized must be insisted on between treatments throughout the course of fixation if muscle atrophy and fibrosis are to be prevented and limitation of motion is to be kept at a minimum.

While recreational therapy is useful when the patient is in bed and has a limited usefulness during early convalescence, vocational methods appear to be much more valuable when the patient is in the later convalescent stages. The tendency at the present time is to emphasize the vocational methods and to deemphasize recreational occupational therapy.

Refrigeration in Treatment of Arterial Obliterations of the Extremities

G. Bickel and J. Fabre. In PRAXIS, Bern, 37:1-20, Jan. 8, 1948. Abstracted in JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 137:4:418, May 22, 1948.

Bickel and Fabre treated 4 patients, 3 women between the ages of 72 and 80 and 1 man aged 80, with gangrene of the lower extremities from obliteration of the arteries, by refrigeration. Amputation was postponed because of severe cardiopathy, advanced cachexia or refusal of surgery. The extremities involved were covered with a stocking of fine wool and then wrapped with ice bags up to 10 cm. above the ischemic zone. The ice was renewed every four hours. Refrigeration was discontinued every day for three hours. The extremity treated in this manner is cooled but not frozen. The nutritive requirements of the cells are reduced by a maximum, the formation of toxins responsible for the occurrence of shock is diminished, the exudative processes are limited, proliferation of pathogenic microbes is inhibited and a pronounced anesthetic effect is produced. Pain subsided within two hours after the initiation of the treatment. There was pronounced improvement in the local condition; in 1 case the ischemic zone was reduced by 6 cm.; in another case mummification of the previously moist and septic gangrene occurred and edema and suppuration subsided. The general condition improved rapidly, temperature was restored to normal and appetite increased. Amputation could be performed after two weeks of refrigeration treatment.

Value of Conservative Management in Cervicobrachial Pain

G. E. Haggart, M.D., Boston. In JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 137:6:508, June 5, 1948.

Treatment

The majority of the patients were managed on an ambulatory basis, reporting to the office for instruction in the details of the program of treatment, which is then carried on at home. Confinement to a firm flat bed accompanied by application of moist and dry heat with gentle massage materially expedited relaxation of the muscle spasm. Particularly was this noted in patients with arthritic changes in the cervical portion of the spine.

Sleeping habits were investigated. In particular, the patient was instructed to sleep with the arms at the side of the body and to avoid abduction of the upper extremity.

In all patients the principal measure for relief of symptoms was a course of graduated active muscle exercises to reeducate and strengthen the elevators of the shoulder girdle, notably the upper fibers of the trapezius and the levator anguli scapulae muscles, as well as instruction to hold the cervical portion of the spine erect with the chin in and to overcome forward position of the shoulders in relation to the thoracic cage. In this connection it is important that the patient hold his head upward and backward, keeping the chin down or in and not simply extending the head backward, which actually may cause increased flexion of the cervical portion of the spine.

Finally, the occupational habits that might contribute to faulty posture and muscle stress and strain were reviewed and suggestions were made to correct or omit the type of activity which would tend to produce cervicobrachial pain. Clerks and students who had occasion to spend long hours over a desk with the head and shoulders forward repeatedly noted improvement in symptoms after taking pains consistently to assume an erect posture when at work.

The same program of therapy likewise has produced satisfactory results in those patients coming to us after trauma, such as a fracture of the clavicle or a rib. It is believed that the symptoms were essentially in relation to voluntary splinting and depression of the shoulder due to pain from the injury, causing altered relationship of the shoulder to the thoracic cage that resulted in continuous cervicobrachial pain. Symptoms were relieved when these postural faults were corrected.

It is not my contention that patients with cervicobrachial pain will never require surgical treatment, particularly persons with large cervical ribs. But I do believe that in all the types herein discussed initial conservative treatment is indicated and that in the majority of cases relief of symptoms can be obtained by these nonsurgical methods.

New Trends in Hospital Design

Paul Haun, M.D., and Z. M. Lebensohn, M.D., In THE AMERICAN JOURNAL OF PSYCHIATRY, 104:8:555, February 1948.

In a 1,000-bed general medical hospital, there would be 280 beds on the neuropsychiatric service consisting of 80 neurological, 80 convalescent (neuroses) and 120 psychiatric beds.

The service is best located on consecutive floors of the hospital to give greater cohesion to its administration. Although other locations are feasible, the topmost floors seem most desirable, since in such a location the behavior of overactive or noisy patients does not become a hospital nuisance. The patients have direct and easy access to a roof garden which, because of its height, insures complete privacy. The hydrotherapy unit should be located on the floor with the disturbed patients who will be using it most. The preferred arrangement would allow disturbed patients to enter it directly from the nursing unit while patients from other nursing units would use a lobby entrance.

The hydrotherapy department in the hospitals we contemplate consists of more than merely applying water as a cure. There is a definite element of group therapy involved when 10-15 disturbed patients are brought to the hydrotherapy suite for treatment. The punitive aspect of placing a patient in a pack or in a tub is avoided. The patient does not feel that he is being singled out for specialized treatment, and a group of patients in hydrotherapy quiets down remarkably well even in a large room. Psychotic patients not infrequently attribute much of their improvement to these treatments. In addition, there is great advantage in placing all hydrotherapy under the control of one skilled therapist. When tubs are placed throughout the hospital on the various nursing units they are rarely used. This results in a great waste of space and equipment. One skilled hydrotherapist and his corps of assistants can, by scheduling patients, treat all those who require hydrotherapy in an admission and treatment building or a disturbed building in the course of a day. Night-time emergencies can be handled readily enough in single rooms on the nursing units by personnel who have rotated through the hydrotherapy service.

The location of the hydrotherapy department is a point of very real importance. We are dedicated to the idea of getting hydrotherapy out of the basement and placing it on the floor nearest the disturbed patients who need it most.

Furthermore we have separated our sedative hydrotherapy (consisting of pack tables and tubs) from our tonic hydrotherapy, which consists of stimulating needle showers and douches. The latter is best located on the ground floor near the exercise room and outdoor exercise areas where it may be most effectively used.

The sedative hydrotherapy unit, like the cafeteria, should be centrally located and if possible so placed that disturbed patients may have access to it without going into the public lobby. However, there should be access to the suite from the public lobby so that patients from other wards may enter the unit without traversing the disturbed section.

The typical sedative unit should consist of four sections: (1) a small hydrotherapist's station or office, with trilateral observation into (2) a dressing room, (3) a pack-room containing 10 to 12 tables, and (4) a tub room containing four continuous-flow tubs. There should also be room for blanket driers, storage closets, toilets, and cleansing showers.

Human Pathologic Anatomy of Ionizing Radiation Effects of the Atomic Bomb Explosions

Colonel Elbert DeCoursey, M.D., U. S. Army. In THE MILITARY SURGEON, 102:427, June 1948.

Summary

The detonation of an atomic bomb is said to result in rays that cover the entire length of the spectrum. The intensity of the thermal radiation was so great in Nagasaki that there were flash burns on such things as wood, oranges, tile and people. Such thin things as leaves, blades of grass, or clothing acted as filters and offered protection to their shadows.

Ionizing radiation, the agent which makes the atomic bomb unique among all other weapons, not only contributed to the morbidity and mortality but also by hindsight contributed in Japan a biological experiment of unprecedented scope. Thousands of humans, because of distances from the source and because of various shieldings received radiation varying from very small amounts to several times the lethal dose.

Effects of Exercise and of Some Other Influences on the Renal Circulation in Man

H. L. White and Doris Rolf. From the Department of Physiology, Washington University School of Medicine, St. Louis, Missouri. In THE AMERICAN JOURNAL OF PHYSIOLOGY, 152:3:505, March 1, 1948.

Relatively few quantitative reports are available on reflex influences on the renal circulation in man.

This paper reports on the effects of postural changes, of a cold stimulus of exercise, and of increased protein intake on para-aminohippurate (PAH) and inulin plasma clearances and, in some experiments, on plasma glucose levels, on occurrence of proteinuria, on blood pressure and on renal vascular resistance.

Summary

1. Increase in protein intake at a single meal had no significant influence on PAH clearance or on renal vascular resistance in normal man and slightly raised inulin clearance; 220 grams of protein daily for a week raised PAH clearance 18 per cent and inulin clearance 31 per cent, and lowered renal vascular resistance 12 per cent.

2. PAH clearance averaged 19 per cent lower and inulin clearance 8 per cent lower on standing than in recumbency; renal vascular resistance averaged 22 per cent higher on standing, due to vasoconstrictor impulses rather than to increased adrenalin output.

3. Immersion of a hand in painfully cold ice water at 0 degree C. produced a slight fall in PAH and inulin clearances with a slight rise in mean blood pressure; a pure cold stimulus through hand immersion in water at 14-15 C. had no effect on clearances or mean blood pressure in the one normal subject studied.

4. Light exercise produces slight falls in PAH and inulin clearances. Moderate to moderately severe exercise lowered PAH and inulin clearances to half or less of their resting values and at least doubled renal vascular resistance; protein may appear in the first postexercise urine samples. Brief maximum exercise lowers PAH and inulin clearances to 20 per cent or less of their resting values while renal vascular resistance is increased at least five-fold; a longer period of maximum exercise at a lower rate is less effective, reducing clearances to about a third of their resting values. Rise in plasma glucose, taken as a tentative index of increased adrenalin output, usually is not marked unless exercise is severe; in a given subject it is proportional to the severity of exercise.

5. Protein did not appear in the urine formed during even the severest exercise of these experiments but after severe exercise was present in the first one or two postexercise samples. The interpretation of the findings is that exercise brings on generalized renal vasoconstriction and that only at the maximum work levels do any large number of glomeruli drop out of function, occurrence of postexercise proteinuria being taken as an index of such dropping and during exercise.

Experimental Hypothermia and Rewarming in the Dog: Recovery After Severe Reduction in Body Temperature

Hans O. Haterius and George L. Maison. From the Department of Physiology, Boston University School of Medicine, Boston, Massachusetts. In THE AMERICAN JOURNAL OF PHYSIOLOGY, 152:2:225, February 1, 1948.

In studies of the hypothermic state, observations have been made upon the capacity for recovery following rather drastic reduction of body temperature, and certain points of interest are incorporated in the present report. It is noteworthy particularly in view of the degree of cooling which can be sustained under certain conditions with the sequel of a complete recovery.

Summary

The ability of normal dogs to withstand and to recover from marked cooling has been studied. Lightly anesthetized animals were submerged in iced water (2 to 9 C.) until a cardiac or respiratory crisis occurred. Resuscitation measures included rapid rewarming in water 42 to 45 C., and artificial respiration as required.

Thirteen animals survived a reduction in deep rectal temperature to an average of 14.9 C. (range 11.7 to 16.8 C.) Recovery in each instance was complete. In two animals the rectal temperature was reduced to 15 C. or below on two occasions. Shivering did not appear to play an important role in the rewarming process; it set in at widely variant stages of recovery and varied in degree from mild to intense.

In cooling, the fall in body temperature was linear, a characteristic which in its early phase probably was influenced by the pre-immersion anesthetic. The visceral-rectal temperature gradient became more pronounced as cooling proceeded. Comparison is shown between rate of cooling of the living and the dead body.

Decline in body temperature was accompanied by a progressive fall in arterial blood pressure and by a bradycardia which became intensified as temperatures fell below 20 C. The slow heart rate was uninfluenced by vagotomy or by atropinization.

Eight animals failed to respond favorably, or expired before rewarming was begun. Death was clearly a matter of respiratory failure in some; in others, it was apparently attributable to heart block. In one preparation, in which the rectal temperature fell to 11.5 C., rewarming death occurred at a rectal reading of 18.2 C.

Ion Transfer of Penicillin: Efficacy of Penicillin Iontophoresis in Treatment of Chancroidal Ulcers

A. J. Pereyra. In UNITED STATES NAVAL MED. BULLETIN, 48:1-152, January-February 1948.

The experiments described by Pereyra were carried out to clarify the problem of ionic transfer of penicillin. It was found that without iontophoresis penicillin applied to the intact skin does not enter the body in amounts sufficient to be detected in the urine, but that sodium and calcium penicillin in adequate concentration in aqueous solution are effective electrolytic salts, and that penicillin applied to the intact skin by iontophoresis is absorbed into the body and is excreted in the urine in appreciable amounts. Only the negative electrode of the galvanic current applied to solutions of these salts effects the transfer of penicillin into the body. The transfer is accomplished most readily from free aqueous solutions of the salts, less readily from gauze pad applicators saturated with penicillin solution. The base was cut from an Erlenmeyer flask, and this open base was sealed to the skin with collodion applied to the rim. Eighty milliliters of penicillin solution were then poured into the glass chamber and the top closed with a stopper supporting a helical coil of copper wire which extended into the solution. This wire was connected to the negative terminal of a galvanotherapy unit. The positive terminal was connected to a thick layer of gauze wet with isotonic sodium chloride solution and wrapped around one leg. The application of penicillin by iontophoresis to the skin does not produce bacteriostatic blood levels of penicillin; the amount of penicillin recoverable in the urine following penicillin iontophoresis to the skin varies directly with the concentration of the solution, the duration of treatment and the strength of the current employed. Penicillin applied by iontophoresis is effective in the treatment of chancroidal ulcers.

Some Deleterious Results of Rest in Bed After Orthopedic Operations

Ralph L. Ghormley, M.D., Rochester, Minn. In THE NEBRASKA STATE MEDICAL JOURNAL, 33:5:160, May 1948.

The deleterious effects from bed rest are known to all of us. Speaking from the standpoint of an orthopedic surgeon, the main deleterious effect is, first of all, atrophy and atrophy not only of bones but also of joints, muscle, fascia, skin, and so forth. The atrophy of bones is manifested by a decalcification; it is actually true that every patient who remains in bed for a period of days begins to lose calcium. It can be demonstrated by increased calcium in the urine.

Another group of patients are those who have paraplegia. There is no need to mention the great amount of publicity this condition has received. Much of it probably is uncalled for, but it has come in by press releases by the Army and Navy. Again, here is a move in the direction to get patients out of bed, get them up and about; and certainly the general over-all picture of the patient up and about, whether on crutches or in a wheel chair, is much better than a patient lying in bed more or less deteriorating from constant and long-continued bed rest.

We now keep patients who have undergone lumbosacral fusion in bed two or three weeks and then allow them up. A recent review of the results of these operations has indicated that the overall average of good results is higher than it was in a group studied before this shortened period of bed rest was prescribed, so I think there is no harm in letting them up early.

If you put those grafts down under a heavy mass of spinal muscles, there is a certain amount of spasm, and the grafts are held in position. As far as I have been able to see, union takes place quicker and better than with a longer period of fixation.

Electrographic Evaluation of Mechanical Response in Mammalian Skeletal Muscle in Different Conditions

G. N. Loofbourrow, Laboratory of Neurophysiology, Department of Physiology, University of Minnesota, Minneapolis. In JOURNAL OF NEUROPHYSIOLOGY, XI:3:153, May 1948.

In view of the frequent use of electromyograms as indicators of muscle activity under physiologic and pathologic conditions, knowledge of the relation of EMG amplitude to the mechanical response is of considerable practical importance. The literature reveals reasons for questioning the dependability of this relationship.

Summary

The relation of EMG amplitude to the mechanical response of tibialis anticus muscle was investigated under a variety of conditions in cats under Dial anesthesia with the following results:

1. Increase in frequency of stimulation, in direct load or after-load, or in the initial length, produces a marked increase in mechanical response without corresponding change in EMG amplitude under conditions of supramaximal indirect stimulation. The constance of EMG amplitude in these circumstances appears to be due to the participation of an unchanging number of motor units.

2. Increasing the intensity of submaximal stimuli results in increasing the EMG amplitude as well as the mechanical response. The magnitude of the electrical response varies with the degree of recruitment.

3. A reduction in mechanical response occurs with fatigue during indirect supramaximal tetanization and is accompanied by a corresponding decrease in amplitude of EMG. These effects involve primarily a reduction in the number of the responding muscle fibers.

4. A reduction in mechanical response without a corresponding reduction in EMG amplitude may occur at a low (twitch) frequency of indirect supramaximal stimulation. This is attributed to a reduction in contractility without a reduction in the number of active fibers.

5. An increased amplitude of EMG is regularly associated with greater mechanical response resulting from increased frequency or intensity of cortical stimulation. This is interpreted to mean increased recruitment and a concomitant rise in discharge frequency in the motor units.

6. Increasing the direct load or the initial length of the muscle in isometric contractions induced by uniform cortical stimulation likewise results in directly related increases in mechanical response and EMG amplitude. The effect of after-load is similar to that of direct load, but is less potent and occasionally lacking. The augmentation of mechanical and electrical response by increased load or initial length seems to be based on a proprioceptive reflex drive which results in recruitment and higher discharge frequency.

7. The lack of parallelism between the mechanical and electrical response of the muscle frequently encountered and analyzed in this paper under conditions of indirect stimulation of the muscle is not found under the more physiologic conditions of cortical stimulation or voluntary effort. In the latter cases, the amplitude of the EMG and mechanogram both reflecting quantitative alterations in the physiologic innervation of the muscle.

Low Back Pain — Orthopedic Aspects

W. R. Hamsa, M.D., Omaha, Nebraska. In THE NEBRASKA STATE MEDICAL JOURNAL, 33:210, June 1948.

Treatment of acute low back strain consists primarily of rest and graduated physical activity. The former is obtained by recumbency on a semirigid mattress. The presence of any flexion contracture of the hips as indicated by a positive Ely or Ober test suggests the addition of flexion of hips and knees to flatten the usual lumbar lordosis—this may be added to any strain for comfort and hence justifies a trial. Rest on either side in similar position is allowed if comfortable. A strain not associated with nerve symptoms is seldom improved by the addition of leg traction. When used, the semiflexed position of hips and knees is advantageous. Local heat as diathermy, infra-red radiation or hot packs afford relief and shorten convalescence. When sufficient improvement justifies change to ambulatory treatment, support by either adhesive strapping or corset is added. Activity is restricted for at least three months as a recurrence may follow simple exertion, especially in individuals with posture change.

Of particular importance is the equalization of leg length by adequate shoe elevation whenever necessary. Minor shortening of a leg is a common occurrence and probably causes little difficulty. However, the combination of a strain in the low back area and leg length difference prolongs symptoms due to asymetrical function.

Discussion of postural strain necessitates introduction of normal posture development and its mechanics. Posture may be defined as the relationship of the center of gravity to the line of gravity. Man's posture is a result of developmental changes and functional stresses which must be interpreted as comparisons to the normal individual's stance. The term "normal individual" cannot be held to a rigid formula. Normal posture is present when the relationship of center of gravity to the line of gravity is comparable to that of the majority of individuals. Theoretically, this line of gravity rises through or slightly anterior to the ankle, through the knee and hip joints, and then crossing the junctions of sacrolumbar, lumbodorsal, and cervicodorsal sections of the spine. Some increase or decrease from this relationship must be allowed, particularly in slender or stocky individuals with normal posture.

Osteoarthritis in Industry

Oswald Savage, O.B.E., M.R.C.P., Assistant Physician, British Red Cross Society's Clinic for Rheumatism, London; Chief Assistant, Rheumatism Department, West London Hospital; Deputy Medical Secretary, Empire Rheumatism Council. In THE BRITISH JOURNAL OF PHYSICAL MEDICINE, Page 43, March-April 1948.

Conclusions

There is no chronic disease in which enthusiasm in the treatment of early symptoms pays so high a dividend.

The most important methods of treatment are heat to relieve the pain and exercises to strengthen the wasted muscles. These patients usually are strong and will tolerate strenuous treatment by exercises and rehabilitation.

There has been a tendency in the past either to dismiss these patients with a hopeless prognosis and allow them to take to their beds, when muscle atrophy is followed by crippledom, or for them to become chronic attenders at an out-patient physical medicine department in the vain hope of restoring a damaged joint surface.

Both these courses are entirely wrong. Patients with osteoarthritis should be encouraged to keep at work, for by using their joints they will retain movement. Once the diagnosis is made it should be recognized that treatment for the relief of symptoms will be necessary and will have to be repeated, but this should be given in short courses which are stopped when symptoms are relieved. In this way such patients can be kept at work for many years, and, if they will cooperate in keeping their effected muscles strong by exercises, the necessity for treatment will increase only very slowly.

In the prognosis of osteoarthritis clinicians should never become subservient to the radiologist.

Afferent Fibers in Muscle Nerves

David P. C. Lloyd and Hsiang-Tung Chang. From the Laboratory of the Rockefeller Institute for Medical Research, New York, and the Department of Physiology, The Johns Hopkins University School of Medicine, Baltimore. In JOURNAL OF NEUROPHYSIOLOGY, XI:3:199, May 1948.

The present investigation was undertaken to obtain classification according to diameter of the myelinated afferent fibers distributed to a number of individual muscles of the hind-limb, the primary purpose being to determine the pattern of afferent nerve fiber supply to limb muscle, and the degree of conformity, among the individual nerves, to that pattern.

A study of the afferent nerve fiber supply to a number of muscles of the hind-limb has led to the following conclusions, some old, some new:

All sizes of myelinated fibers are represented among the afferent nerve fibers of the muscles named, the upper limit of fiber size, however, varying somewhat from one nerve to another.

The fibers, in categories of diameter, are clustered about three peaks of numerical preponderance.

The characteristic pattern of the afferent fiber caliber spectrum is repeated, with minor variation, in each of the individual muscle nerves.

Concerning the upper limit in diameter of afferent fibers distributed to hind-limb muscles, the recent observations indicate that:

1. The more proximal muscles (femoral group) receive larger afferent fibers than do the more distal muscles (crural group.)

2. Extensor muscles (pale) receive larger fibers than do their flexor antagonists.

3. Many (4.65-14.5 per cent of total) of the afferent fibers to pale heads of an extensor muscle are larger than any to the red fraction of the same muscle.

Physical Treatment of the "Frozen Shoulder"

H. J. Behrend, M.D.. New York City. From the Hospital for Joint Diseases and Goldwater Memorial Hospital. In NEW YORK STATE JOURNAL OF MEDICINE, 48:9:1035, May 1, 1948.

When the patient complains of severe pain, when the area of the joint capsule is tender and the musculature of the shoulder girdle is found to be congested, hardened, and tender, and when every attempt of moving the extremity elicits severe pain, we refrain from any attempt at active or passive motion including the application of the sinusoidal current. Conservative treatment then is in order, preferably minimal long wave diathermy using the anterior-posterior or longitudinal (cuff and saddle) method. Application of the steam jet, hot wet compresses, mud packs, or hydrogalvanism with histamine or magnesium sulfate or local paraffin application may assist. Salicylates and sedatives should be prescribed liberally.

Massage is indicated when the musculature is found to be the main seat of the pain. However, extreme caution and wise management are in order here. When the muscle is hardened in its totality and in spasm, mild stroking is permissible. Kneading and deep friction will aggravate the spasm and pain.

After a few weeks of preparatory treatment the pain may disappear almost entirely; the painful "frozen" shoulder has changed into a painless one, or the character of the pain has changed distinctly, which makes us decide to proceed with more active treatment. This time period is very difficult to determine and requires extensive experience.

After about ten minutes of long wave diathermy or mild infra-red radiation, the sinusoidal current is used. One pad is placed over the supraclavicular area and a cuff is placed around the middle of the arm. The current is turned on and is slowly increased until a mild to medium strong contraction of all muscles is observed.

After the musculature has definitely improved, passive stretching and active exercises are begun. At this time usually increase of range of motion can be observed already.

The time of full recovery, however, can be greatly reduced if stretching and exercise are added.

The question arises as to whether treatment must be continued regularly until full motion is restored. In our opinion this is not necessary, because once improvement has begun, it will continue spontaneously.

Hemoconcentration After Electrically Induced Convulsions in Man

M. D. Altschule, J. E. Cram and K. J. Tillotson. In ARCHIVES OF NEUROLOGY AND PSYCHIATRY, 59:1-140, January 1948.

In view of the fact that variations in the water balance influence the activity of the cerebral cortex and cause important changes in the body as a whole, Altschule and his co-workers decided to investigate the occurrence of hemoconcentration during the violent muscular contractions of electrically induced convulsions. Fifty-five studies of hematocrit readings and sixty determinations of plasma protein were made before and after routine electroshock treatments on 10 patients. It was found that hemoconcentration and decreased plasma volume occur regularly. Curare diminishes but does not abolish these changes. It is suggested that the decreases in plasma volume probably are important in explaining the fall in venous and arterial pressures noted toward the end of electrically induced seizures in many patients. The question arises whether the brief periods of muscular contraction occurring during electrically induced convulsions can cause the same type of response of the pituitary gland as a more protected voluntary muscular effort.

Technics of Progressive Resistance Exercise

Thomas L. De Lorme, M.D., and Arthur L. Watkins, M.D., Boston. In ARCHIVES OF PHYSICAL MEDICINE, XXIX:5: 263, May 1948.

Summary

1. The term "progressive resistance exercise" has replaced the original term "heavy resistance exercise" for the reasons mentioned.
2. The principle of counterbalancing has been employed to make possible the administration of progressive resistance exercise to muscles so weak that they cannot complete an arc of motion against gravity.
3. The principles employed in counterbalancing weak muscles are in no way contradictory to those of the original "heavy resistance exercises."
4. The exercise load is the load with which the exercise is performed, either resisting or assisting the muscle.
5. The muscle load is the actual resistance the muscle must overcome.
6. Load assisting exercises are those in which the exercise load assists the muscle—i.e., counterbalancing.
7. Load-resisting exercises are those in which the exercise load resists the muscle.
8. The increases in muscle loads for the load-resisting exercises are based on the 10 repetition maximum.
9. The increases in muscle loads for the load-assisting exercises are based on the 10 repetition minimum.
10. The 10 repetition maximum is the most weight the muscle can correctly lift 10 times.
11. The 10 repetition minimum is the least amount of help required by the muscle to help it to lift the extremity 10 times through a full arc of motion.
12. Specialized exercise equipment makes it possible to treat patients more efficiently with various complicated remedial exercises.

The Magnuson-Stack Procedure for Recurrent Dislocations of the Shoulder

N. J. Giannestras, M.D., Cincinnati, Ohio. In SURGERY, 23:794, May 1948.

The multiplicity of procedures described for repair of recurrent traumatic subcoracoid and subglenoid dislocation of the shoulder is ample evidence that no procedure has yet proved completely successful. During the last few years two procedures have held out more hope for permanent reduction; one is the Bankart operation of repair of the capsule, and the other the Magnulson-Stack procedure of transportation of the tendon of the subcapularis from the lesser to the greater tuberosity of the humerus. The author is concerned with the latter procedure, and wishes to report a follow-up study of thirty-one such operations, which vary in follow up from three years to one and one-half years. It is conceded that the length of time elapsed is insufficient for a complete and final analysis, but it is hoped that this report will serve as an added impetus for more bone and joint surgeons to use this procedure. It appears to be quite promising, and only by reviewing a large series of cases at least five years after surgery can any definite conclusions be reached.

The period of absolute immobilization is three weeks. At the end of this period of immobilization active and passive exercises are instituted, in the form of pendulum exercises actively, three times daily for ten minutes, and gentle external rotation passively once daily by the physical therapist. Active external rotation and abduction were not instituted until the end of six weeks, at which time these motions are included in the daily exercise routine. At the end of eight weeks, the average patient has almost complete range of all motions, except for external rotation which usually is limited to about 110 degrees of the normal, the normal being between 130 and 140 degrees.

Management of Peripheral Vascular Disease

Nathan Bloom, M.D., Richmond, Virginia. In VIRGINIA MEDICAL MONTHLY, Page 248, May 1948.

Rest

When at rest the lower extremities should be in a horizontal position with a small pillow under the knees. The feet will then be slightly dependent and about six inches below the level of the heart, which is the best position for circulatory efficiency. At this level there is very slight distention of the veins on the dorsum of the foot. The patient also is advised to limit his walking or other active exercises to the minimum and is not allowed to sit with his knees crossed, as this will cause pressure on the popliteal arteries.

Passive Vascular Exercise

We advocate the Buerger type of passive vascular exercise. The patient is advised to perform the exercises three times a day, keeping the limbs elevated at a forty-five degree angle until there is beginning pallor of the feet. This usually takes one to two minutes. The limbs are then placed in a dependent position until rubor appears. This usually takes from three to five minutes. The limbs are then placed in a horizontal position for five minutes. The entire cycle is performed for thirty minutes three times daily.

Baths

Daily warm tub baths are advocated. The tub bath is in at least twelve inches of lukewarm water and is followed by cocoa butter massage to both extremities. The massage is an up and down motion from the thighs to the toes.

Effects of Artificially Induced Fever on the Circulation in Arthritic Patients

Khalil G. Wakim, M.D., Ph.D.; Frank H. Krusen, M.D., and Earl C. Elkins, M.D., Mayo Clinic, Rochester, Minn. In ARCH. OF PHYSICAL MEDICINE, XXIX:5:274, May 1948.

Summary

By the use of the compensating spirometer recorder the blood flow was studied plethysmographically, before and after artificial induction of fever, in patients who had rheumatoid arthritis involving various joints. For therapeutic purposes artificial fever was induced actively by the intravenous administration of typhoid vaccine and passively by physical means—Kettering hypertherm and hot tub baths—to a temperature of about 101 F. or more. Induced hyperthermia, whether active or passive, produced an increase of the peripheral circulation. Active fever induced by intravenous administration of typhoid vaccine led to a reduction of peripheral blood flow during the chill phase. Physically induced fever, by the use of hot baths or Kettering hypertherm, was consistently accompanied by an increase of blood flow and an increase of heart rate. Prodromal symptoms and chills characterized the fever artificially induced by the intravenous administration of typhoid vaccine but were nonexistent in the physically induced fever.

Treatment of Phlebitis and Its Complications

I. A. Bigger. M.D., Richmond, Virginia. In VIRGINIA MEDICAL MONTHLY, Page 229, May 1948.

Treatment: Prophylaxis against clot formation in the veins should be discussed first. The most important prophylactic measure is the avoidance of prolonged bed rest. As you know, in most surgical clinics, this is being taken care of by early postoperative ambulation.

Elevation of the foot of the bed immediately after operation improves venous drainage and thereby helps avoid stasis. Leg exercises in those individuals who are not able to be out of bed avoids stasis and helps prevent clot formation. Anticoagulants, such as herapin and dicumarol, are of value but they have definite dangers and should not be used indiscriminately.

Wound Healing in Early Ambulation

Henry P. Royster, M.D., Lillian I. McCain, B.A., and Alexander Sloan, B.A., Philadelphia, Pa. In SURGERY, GYNECOLOGY AND OBSTETRICS, 86:565, May 1948.

The recent work of Leithauser has refocused attention in this country on the advantages of early postoperative ambulation. This method of treatment often has been a source of doubt in the minds of surgeons who naturally might fear a disturbance in wound healing, especially after laparotomy. The possibility of rupture of the abdominal wound or subsequent herniation has long been a hindrance toward getting patients out of bed soon after an operation, despite reports which specify that in case of wound rupture, the majority of these accidents occur before the patient becomes ambulatory.

This work was designed to compare the tensile strength of abdominal wounds of a group of dogs exercised daily after operation with a similar group—closely confined. The conditions reproduced as nearly as possible those of patients treated postoperatively by bed rest and by early ambulation.

Summary and Conclusions

1. Studies of serum protein, weight change and tensile strength of the abdominal wound were performed in 26 dogs.
2. One half of the animals were kept inactive after operation, and the others were treated by early postoperative ambulation.
3. Comparison of the two groups is as follows:

a. The general condition of the ambulated animals was improved over that of the controls.

b. A significant number of animals in the ambulated group gained weight while the controls generally lost weight.

c. The tensile strength of the postoperative abdominal wound in the ambulated group did not differ significantly from the values in the control group.

Treatment of Poliomyelitis in Acute and Convalescent Stages: Physical Therapy and Orthopedic Considerations

A. D. Gurewitsch, H. Hallock and R. J. Dugan. In NEW YORK STATE JOURNAL OF MEDICINE, 48:225-336, February 1, 1948.

This discussion by Gurewitsch and his associates is based on the study of 552 paralytic patients in the acute and early convalescent stages who were treated from 1942 through 1946 at the New York State Reconstruction Home. Spontaneous pain can be eliminated by proper positioning of the patient and by measures of support. Pain on squeezing and on motion of a joint is best treated with moist heat. The authors have been prescribing hot packs extensively. Passive exercises to all joints are started from admission of the patient. With gradually subsiding pain the vigor of the passive motion is increased. Muscular reeducation should be graded carefully, and care should be taken to avoid exhaustion of a weak muscle. Ambulation is allowed as soon as it is considered that the upright posture and the effort of walking will not affect recovering muscles unfavorably. At first patients are placed on their feet in warm water up to the neck. This eliminates gravity and stimulates a multitude of postural reflexes without fatiguing muscles by weight bearing. By gradually reducing the level of the water, the amount of weight bearing is graded. Functional occupational therapy, given for the double purpose of recreation and training of muscles and skills, is used extensively in this phase. If deformities occur or increase in spite of the early application of heat and stretching, they must be corrected by methods of traction, wedging or turnbuckle casts. If deformities develop and will not yield to conservative means of therapy, surgical correction will be necessary.

Factors Influencing the Healing of Anorectal Surgical Wounds

John McGivney, M.D. In SOUTHERN MEDICAL JOURNAL, 41:397-401, May 1948.

When an anorectal wound heals to a certain point and then after a reasonable period of time shows no further tendency to heal, a state of "delayed wound healing" may be said to exist. This paper will concern only the type of tissue repair that occurs in the healing of anorectal wounds and those factors which contribute to delayed healing of these wounds.

A good blood supply to the anorectal region is best maintained with the patient at rest in bed. The horizontal position combats blood stasis by encouraging venous return. Ice bags applied to the anus after surgery will aid in decreasing pain. After the first twenty-four hours, however, warm moist applications seem to be more appreciated by the patient and it is probably that they improve the local blood circulation and assist the inflammatory reaction.

Some Practical Aspects of Surgical Care

Robert Zollinger, M.D., and Curtis Artz, M.D. In THE WEST VIRGINIA MEDICAL JOURNAL, 44:6:151, June 1948.

Prolonged Bed Rest—The patient who spends a great deal of time in bed prior to operation is predisposed to pulmonary embolism from phlebothrombosis of the deep veins in the legs. Early ambulation after operation will not offer sufficient protection if a prolonged period in bed at home has promoted venous stasis. Simple exercises which provide motion of the major joints will improve circulation and should be suggested if the bed rest at home is absolutely necessary. Patients become weaker in direct proportion to the duration of time that is spent in bed.

Since Leithauser's recent popularization of early ambulation in 1941, most patients are allowed out of bed on the first postoperative day. This not only improves morale but also hastens convalescence. The incidence of pulmonary and vascular complications is probably decreased; the vital capacity increases more quickly, normal bowel and bladder function are encouraged, and general postoperative disability is markedly diminished. However, there are a few contraindications to early rising. These include shock, cardiac insufficiency, severe anemia and cachexia, an insecure wound, presence of thrombosis, or suppuration near the wound. On the evening following operation, the patient may be encouraged to sit on the side of the bed, kick his legs and cough. Motion of the feet and legs must be encouraged. The purpose of early ambulation is defeated if the lower extremities are allowed to hang motionless over the bed or chair. The upright position promotes venous stasis in quiet legs.

After the first time out of bed, the patient is urged to be up twice a day and to walk as much as his condition permits. Many nurses and interns have no routine method of assisting patients out of bed. Every physician should familiarize himself with the proper technic of early rising and teach his principles to those responsible for the care of his patients.

The British Journal of Physical Medicine

Conference on Remedial Gymnastics. London, March-April 1948.

The Ling Physical Education Association held a 5 days' conference on remedial gymnastics in London over the New Year. The aims of the conference were to emphasize the importance of the prevention and cure of minor defects in school children, to stimulate interest in the specialized treatment of those more seriously handicapped by deformity, injury or disease, and to give a picture of some forms of remedial gymnastics as carried out in Great Britain.

Low Grade Fever Therapy as an Adjuvant in the Treatment of Certain Types of Arthritis

Glenn E. Drewyer, M.D., F.A.C.P., Glenwood Springs, Colo. In ARCHIVES OF PHYSICAL MEDICINE, XXIX:5:284, May 1948.

It should be pointed out that there are several reasons for the failure of many arthritic patients to manifest satisfactory improvement; first, the presence of some other disease in addition to the arthritis, such as chronic pulmonary infections, chronic renal disease, rheumatic heart disease, obesity, chronic colitis, and a host of others; second, failure on the part of the attending physician to plan an adequate course of therapy to meet the needs of the individual arthritic patient in facilitating his recovery, and third, failure on the part of the patient to cooperate to the fullest extent in the program outlined for his recovery. Finally, there are certain arthritic patients whose disease process seems to progress steadily in spite of what seems adequate therapy, but this is equally true in other disease processes to which man is subjected.

Injection Therapy for Angiomas

G. Marshall Crawford, M.D., Brookline, Mass. In JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 137:6:519, June 5, 1948.

Methods of Treatment

Injection therapy for angiomas is not new nor necessarily the best in all cases, but it is simple, efficient, and nonhazardous and has received less emphasis than it deserves. It compares most favorably with other modalities.

Excision is the quickest cure for selected lesions and the results usually are satisfactory.

Radiation therapy is perhaps the most widely employed method of treating angiomas at the present time.

Solid carbon dioxide also is used extensively in treating hemangiomas.

Surgical diathermy of various types may be employed for special situations, but here again scarring is unavoidable.

Early Ambulation in Abdominal Surgery

F. M. Simmons Patterson, M.D., and James J. Richardson, M.D. In THE NORTH CAROLINA MEDICAL JOURNAL, 9:301, June 1948.

Until recently we tried to get our patients to walk between the eighth and forty-eighth postoperative hours, but we have now come to feel that early ambulation is of limited value unless the patient actually walks before twenty-four hours have elapsed.

If the operation has been a minor one, the patient is asked to lie on his side near the edge of the bed, assistance being given if necessary. The head of the bed is then elevated to a high back-rest position, and the patient is allowed to dangle his feet. If vertigo ensues, the procedure is repeated later until this is overcome.

After the patient has sat with his feet dangling for a few minutes, he is assisted to his feet, permitted to walk ten to twenty paces with assistance, and then allowed to remain in a chair for fifteen to twenty minutes. In addition to ambulation, we insist from the start that the patient be active while in bed. He is encouraged to take deep breathing exercises, to change position at least once an hour, and to dorsiflex the feet at least a thousand times each day.

Summary and Conclusions

A series of 504 cases of abdominal operations in which early ambulation was employed is reported. There was no mortality. The incidence of postoperative complications, with the possible exception of phlebitis, was decreased markedly. Except for those conditions which demand bed rest, we have found no contraindications to early ambulation, and recommend its use without qualification.

Treatment of Acute Fractures of the Neck of the Femur

George W. Van Gorder, M.D., Boston. In JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 137:14:1181, July 31, 1948.

Postoperative Care

The postoperative care of patients whose hips have been nailed varies tremendously in different clinics, from no external support of any kind for the hip following operation to protection in bed with leg traction for periods up to three months.

Still others, as McElvenny, have stated their belief that no attempt should be made to hurry these patients out of bed; if the patients have done well in bed, McElvenny keeps them down from three weeks to twelve weeks—depending on their age, size and ability to handle themselves. Exercises and physical therapy were started about the fourth postoperative day, however.

The practice in the Massachusetts General Hospital Fracture Clinic has been to place these patients, after their operation, back in traction for one month, then to remove the traction, but to keep them in bed for another two weeks. At the end of six weeks, they are taught to walk with crutches, allowing the foot of the affected leg to touch the floor but not to bear any real weight. In other words, we feel, as does Watson-Jones, that early weight bearing is not imperative and may be dangerous.

Book Reviews

A Way to Natural Childbirth: A Manual for Physiotherapists and Parents-to-be. *By Helen Heardman, Diploma, Bedford Physical Training College, Chartered Physiotherapist (Teacher's Certificates). Cloth. Price, $2.50. Pp. 124, with 66 illustrations. The Williams and Wilkins Company, Mt. Royal and Guilford Aves., Baltimore 2, Md., 1948.*

Doctor Browne in his foreword says: "Nothing has been more remarkable in the practice of obstetrics within the last ten years than the increasing appreciation of the value of the principles enunciated by Edmund Jacobson in 1929 in his book 'Progressive Relaxation'."

The author who has three children and first became a mother at the age of 37, knew then, in spite of previous medical and physical education, nothing of "natural childbirth." For her knowledge of its philosophy and attainment, she states that she is indebted to Dr. Grantly Dick Read. She endeavors in this book to keep closely to his teaching. She states that she also is deeply indebted to Dr. Kathleen Vaughan for the help gained from her publications on the development of the female pelvis and the effect of exercises and posture upon it and therefore childbirth. The exercises used are adaptations from those brought to England many years ago in the system of Per Henrik Ling and now known as Ling's System of Swedish Gymnastics and Swedish Remedial Exercises.

This book should be in the library of every obstetric surgeon. It should be read by every physical therapist interested in the subject.

A Decade of Doing: The Story of the National Foundation for Infantile Paralysis, 1938 to 1948. *Paper. Pp. 20. National Foundation for Infantile Paralysis, 120 Broadway, New York 5, N. Y.*

This is a good story of the work of this organization and can be secured free from the organization.

Nursing for the Poliomyelitis Patient. *Prepared and published by the Joint Orthopedic Nursing Advisory Service of the National Organization for Public Health Nursing and the National League of Nursing Education. Paper. National Organization for Public Health Nursing, 1790 Broadway, New York 19, 1948.*

This handbook has been prepared primarily for nurses but it will be useful also to other professional workers concerned with the care of the poliomyelitis patient. Lois Olmsted and Jessie Stevenson, consultant in orthopedic nursing for the National League of Nursing Education and the National Organization for Public Health Nursing, have been instrumental in leading to better teamwork and understanding between the various professional groups particularly in relation to nurses and physical therapists. In this coordination they have had the active support of Dr. Hart E. Van Riper and Catherine Worthingham of the National Foundation for Infantile Paralysis. Their experience is reflected in this compendium.

The writers indicate how the nurse may smooth the path for the physician and his colleagues by helping the patient and his family to anticipate and have confidence in new measures introduced as well as aiding adjustment to physical limitations.

This booklet should be read by every nurse and physical therapist caring for the poliomyelitis patient.

The Psychology of Behavior Disorders: A Biosocial Interpretation. *By Norman Cameron, M.D., Ph.D., Professor of Psychiatry, University of Wisconsin Medical School. Cloth. Price, $5. Pp. 622. Houghton Mifflin Company, Boston, Mass., 1947.*

This presentation of a supposedly original concept in psychiatry makes an interesting contribution to the literature. It is written by a man trained in philosophy and psychiatry and displays a good deal of originality. The main thesis of the approach is that behavior pathology is dependent upon the social forces brought to play upon an individual from his birth onward. He rejects the classical behaviorism with its continued reflexes and instincts, and very distinctly dispenses with the psycho-analytical principles of the personality structure.

The book is arranged in a rather formal pattern in which there are specific chapters devoted to clinical syndromes encountered in psychiatry. Each chapter is then broken down into description of the entity, biosocial bases of the syndrome, biosocial determinants of the syndrome and finally the relation of the particular symptom to other behavior disorders. In his desire to avoid use of the unconscious the author indulges in some rather confusing language and leaves the reader with the feeling that there is something superficial about the manner in which any behavior disorder develops. The various disease entities are distinguished only by their prevalent symptomatology and this seems to lead nowhere because all the symptoms occur in different intensities in different types of cases.

In spite of the criticisms mentioned the book serves the useful purpose of highlighting the importance of familial, communal and other social forces in determining behavior. For the most part it is clearly written and contains numerous case histories which clarify the author's particular concept. It is recommended to mature psychiatrists as an alternative point of view.

A Manual of the Treatment of Fractures. *By John A. Caldwell, M.D., Professor of Clinical Surgery, College of Medicine, University of Cincinnati, Director of the Fracture Service, Cincinnati General Hospital, Cincinnati. Second edition. Cloth. Price, $4.50. Pp. 152, with 76 illustrations. Charles C. Thomas, 301-327 E. Lawrence Ave., Springfield, Illinois, 1947.*

This manual elucidates the principles of procedure and does not describe specific methods. It does rationalize what is considered good practice, it points out errors of poor management, it helps the surgeon to use his eyes, hands and reason. It reduces the use of gadgets and operative technics to a minimum. It emphasizes well recognized orthopedic principles rather than giving prominence to personalized procedures. This manual of the treatment of fractures supplies an important book for medical students, house officers and general practitioners.

Textbook of the Nervous System: A Foundation for Clinical Neurology. *By H. Chandler Elliott, M.A., Ph.D., Assistant Professor of Anatomy, Medical College of the State of South Carolina, Charleston. With an introduction by Wilder Penfield, M.D. Fabrikoid. Price, $8. Pp. 384, with 158 illustrations and an atlas. J. B. Lippincott Co., 227-231 S. 6th St., Philadelphia 5, 1947.*

Many textbooks in medicine are written on such conventional lines that their table of contents are closely similar. Every once in a while a book appears which is a departure from routine standardized thinking and offers something different and new. Such is the case with this book which is described by the author as a foundation for clinical neurology.

It cannot be labeled strictly as a book in neuroanatomy and certainly it is not physiology nor clinical neurology. Nevertheless it is a bold attempt to correlate all of these in simple language dealing only with details in anatomy and filling in whatever allied fields that will help the student to understand and fix the information in his mind.

The author has made an innovation in textbooks of this type in that the first part is a broad outline of the structure of the nervous system with numerous intentional omissions of details. This builds up what he calls the "basic brain." Then in part two each system and structure of the conventional anatomy books is again described but now with the elaboration of anatomic, functional and even clinical details which give the dry form meaning and substance. It is written in a rather personal fashion so that one gets a feeling that there is life and romance in the subject. There are numerous cross references which will permit the student to review the material. At the end is a fine bibliography and a fairly good set of illustrations of brain sections. The illustrations in the body of the book are for the most part very revealing, informative and largely original.

There are a few defects which this reviewer would like to mention. Perhaps because of the unusual approach the author makes numerous statements that seem apologetic in referring to some places of perhaps excessive simplification. His description of cerebellar function seems confused when he describes dysmetria as a sign of locomotor ataxia and asynergia as a cerebellar sign. One is left with the impression that tabes is primarily a disease of cerebellar pathways. In reference to the function of the third nerve nucleus he states that a lesion involving one part of the nucleus probably would involve all the other parts, too. This is not correct. In spite of the weakness in a few of the clinical aspects of his discussions there is no doubt that this book is a valuable asset in the literature of neurology for the student. Perhaps its greatest use will be for physicians who are interested in reviewing their neuroanatomy without getting bored. The book is highly recommended.

Human Neuroanatomy. *By Oliver S. Strong, formerly Professor of Neurology and Neurohistology, College of Physicians and Surgeons, Columbia University and Adolph Elwyn, Associate Professor of Neuroanatomy, College of Physicians and Surgeons, Columbia University. Second edition. Pp. 442, with 336 illustrations. Price, $6. The Williams and Wilkins Company, Mt. Royal and Guilford Avenues, Baltimore 2, Md., 1948.*

This book is a human neuroanatomy sufficiently rich in content to obviate the necessity of constantly consulting larger anatomical texts. The first part is concerned with the general organization and meaning of the nervous system, its embryology and histological structure and with some fundamental neurological problems as they apply to man. This is followed by a discussion of the organization and segmental distribution of the peripheral nerve elements, including an analysis of the functional components of the spinal nerves and of the various receptors and effectors. These chapters are more extensive than in most other texts because the authors correctly believe that a knowledge of these preliminaries is essential for an understanding of the complex machinery of the spinal cord and the brain.

The second and larger part is devoted to the architectonics of the central nervous system and may be regarded as "applied neuroanatomy." Special features of this part are many fine photographs, both gross and microscopic of the human brain and spinal cord, the great wealth of anatomical detail, and the discussion of the structural mechanisms in the light of clinical experience. The individual portions of the nervous system are treated separately, an attempt has been made to achieve organic structural continuity by judicious repetition and overlapping and by constant reference to related topics already familiar to the student from previous chapters. The gross structure and relationships are concisely but thoroughly reviewed with the aid of clear and graphic illustrations. The internal structure is then presented in detail, usually based on a carefully graded series of fine and clearly labelled microphotographs of human material. At each level the student is familiarized with the exact location, extent and relationships of the various structures seen in the section. Finally the anatomical features of each part are reviewed more comprehensively as three-dimensional structural mechanisms, with a full discussion of their connections and clinical significance.

The above-described style and the many excellent illustrations make this book an excellent one for reference for physical therapists.

Meet Our New Contributors

Bier, Kathryn Scholle, Box 454, Carmel-By-The-Sea, Calif. Graduated from Boston School of Physical Education in 1923 and from Walter Reed General Hospital, physical therapy, in 1924. Hospital, office, and private practice from 1924-1942 at which time she became 1st. Lieutenant, A. U. S., stationed at Ft. Ord, Calif.. following which she spent 25 months in England as physical therapist in Rehabilitation Centers and Station Hospitals. She later became Coordinator for the 805th district, PT and completed her army service with the School Section at Headquarters in London where she acted as liaison officer between the British and Americans and was instrumental in arranging the opportunity for American physical therapists to observe in British hospitals. It was during this period that Miss Bier became interested in the Guthrie-Smith apparatus and when she returned to her private practice in California she began using it and acting as consultant in GS for the Veterans Administration, at Stanford University, and for the Department of Physical Therapy at Los Angeles General Hospital which is affiliated with the USC Medical School. (In August 1947, Miss Bier returned to England to discuss suspension technics in further detail with Mrs. Guthrie-Smith with the view to being her representative in the U. S.) Miss Bier now holds a Reserve commission as Captain in the Women's Medical Specialist Corps, U. S. Army, and continues in private practice. Member: American Physical Therapy Association.

Rutherford, Berneice R.: Correction: Miss Rutherford's degrees were incorrectly listed in the May-June 1948 issue of the Review. Both her B.S. and M.S. degrees were conferred by the University of Minnesota.

Chapter Directory

Alabama Chapter

President, Bernice K. Carr, 325 41st St., Fairfield, Ala.
Secretary, appointment pending.

Arizona Chapter

President, Florence Collier, 1902 E. 3rd St., Tucson, Ariz
Secretary, Leone Crosby, Tucson Senior H. S., 2nd Ave. and 6th St., Tucson, Ariz.

Arkansas Chapter

President, Lois Sirman, 1820 S. Martin St., Little Rock, Ark.
Secretary, Anna J. Janett, Army-Navy General Hospital, Hot Springs, Ark.

Carolina Chapter

President, Emily Cate, 1622 Heyward St., Columbia, S. C.
Secretary, Lelia R. Zernow, Box 606, Black Mountain, N. C.

Central New York Chapter

President, John Lindell, 1652 Grandview Ave., Utica 4, N. Y.
Secretary, Elvira Hoffmire, 716 S. Crouse Ave., Syracuse, N. Y.

Colorado Chapter

President, Mrs. Angela Keifer, Apt. 17, 3514 S. Broadway, Englewood, Colo.
Secretary, Adeline Doing, Colorado General Hosp., Denver, Colo.

Connecticut Chapter

President, Edith L. Nyman, 780 Howard Ave., New Haven, Conn.
Secretary, Sarah C. Johnson, Norton Rd., Kensington, Conn.

Delaware Chapter

President, Elizabeth Buffington, 401 W. Sickles St., Kennett Square, Pa.
Secretary, Mary L. McCarthy, Box 172, Dover, Del.

District of Columbia Chapter

President, Mrs. Florence Linduff, 1629 Columbia Rd., Washington 9, D. C.
Secretary, Martha Monroe, 4004 Beecher St. S. W., Apt. 304, Washington, D. C.

Eastern Missouri Chapter

President, Miriam Rodenberger, 1676 N. 36th St., East St. Louis, Ill.
Secretary, Mary C. Safris, U. S. Marine Hosp., Kirkwood, Mo.

Eastern New York Chapter

President, Sarah Reed, 124 Rosa Rd., Schenectady, 8, N. Y.
Secretary, Kate Birdsall, 186 Lancaster St., Albany, N. Y.

Florida Chapter

President, Mrs Ada G. Winstanley, V. A. Hospital, Bay Pines, Fla.
Secretary, Mrs. Blanche A. Vandiviere, P. T. Dept., Vets. Hosp., Bay Pines, Fla.

Georgia Chapter

President, Betty Schlosser, Warm Springs Foundation, Warm Springs, Ga.
Secretary, Betty Brown, Warm Springs Foundation, Warm Springs, Ga.

Illinois Chapter

President, Mrs. Dorothy Stults, 2201 Payne Ave., Evanston, Ill.
Secretary, Elizabeth E. Jones, 3529 W. Congress St., Chicago 24, Ill.

Indiana Chapter

President, Mrs. Mary S. Hagar, 187 Royal Road, Beech Grove, Ind.
Secretary, Leota Haynes, 1561 Lawton St., Indianapolis 3, Ind.

Iowa Chapter

President, Mrs. Olive Farr, 223 S. Johnson St., Iowa City, Iowa.
Secretary, Charlotte Vasey, 210 E. Davenport St., Iowa City, Iowa.

Kansas Chapter

President, Mrs. Ruth G. Monteith, Univ. of Kansas Hosp., Kansas City, Kans.
Secretary, Edith Burt, Bethany Hospital, Kansas City 2, Kans.

Kentucky Chapter

President, Eloise Draper, 1314 Lydia, Louisville 4, Ky.
Secretary, Mrs. Agnes Shehan, 3331 Alford Ave., Louisville, Ky.

Louisiana Chapter

Acting President, Helen C. Chatelain, 129 Jackson St., Lafayette, La.
Secretary, Margie Boyd, 514 Park Blvd., Algiers, La.

Maine Chapter

President, Florence Trask, Spurwink Ave., South Portland, Me.
Secretary, Myrtle Louise Bickmore, 106 Pine St., Portland 4, Me.

Maryland Chapter

President, Mrs. Mildred Selenkow, 4134 Woodhaven Ave., Baltimore 16, Md.
Secretary, Mrs. Lucille Hardin, 3706 N. Charles St., Baltimore 18, Md.

Massachusetts Physiotherapy Association, Inc.

President, Doris Volland, 319 Longwood Ave., Boston, Mass.
Secretary, Mrs. Cynthia K. Adler, 21 Oldfields St., Roxbury 21, Mass.

Michigan Chapter

President, Elizabeth Masola, 449 W. Ferry, Detroit 2, Mich.
Secretary, Sophia Radlow, 2975 Chicago Blvd., Apt. 206, Detroit 6, Mich.

Minnesota Chapter

President, Mrs. Grace B. Smith, 2129 Berkeley, St. Paul 5, Minn.
Secretary, Nora Hoel, 1014—31st Ave., N.. Minneapolis, Minn.

Nebraska Chapter

President, Mrs. Jeanne Hughes, 2627 North 50th St., Lincoln 4, Nebr.
Secretary, Elizabeth Kraetsch, 3926 Harney St., Omaha 3, Nebr.

New Jersey Chapter

President, Grace Ward, 144 S. Harrison St., East Orange, N. J.
Secretary, Marie Heghinian, 307 Fairmount Ave., Jersey City 6, N. J.

New York Chapter, Inc.

President, Mary Cover, Neurological Inst., Ft. Washington Ave. and 168th St., New York, N. Y.
Secretary, (Miss) Floy Pinkerton, Room 426, 630 W. 168th St., New York 32, N. Y.

Northern California Chapter

President, Mrs. Margery Wagner, Univ. of Calif. Hosp., San Francisco, Calif.
Secretary, Janet Osborn, 2031 Dwight Way, Berkeley, Calif.